VOL. XLIV. No. 1 JANUARY 1959

MECCANO MAGAZINE



15c

DINKY SUPERTOYS



No. 981
Horse-Box
Length 6¾ in. Price **17/11**



No. 971
Coles Mobile Crane
Length 6¾ in. Price **11/6**



No. 965
Euclid Rear Dump Truck
Length 5¾ in. Price **9/11**



No. 903
Foden Flat Truck
with tailboard
Length 7¾ in. Price **8/9**



No. 943
Leyland Octopus Tanker
'ESSO'
Length 7¾ in. Price **10/9**

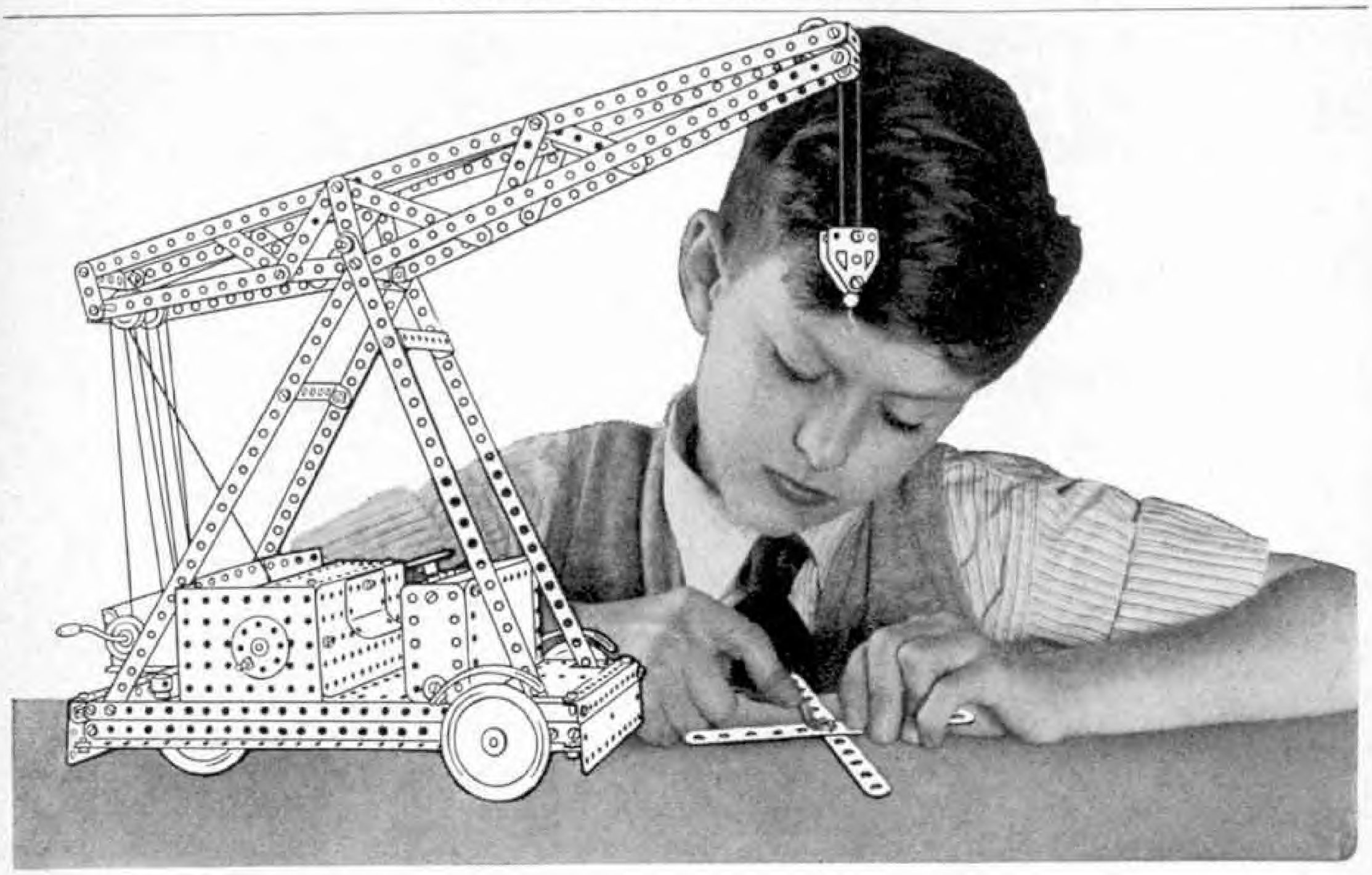


No. 972
Coles 20-ton Lorry Mounted Crane
Length 9¾ in. Price **16/6**

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Binns Road, Liverpool 13

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No. 4a	,, ,, ..	1	3	11
No. 5a	,, ,, ..		19	0
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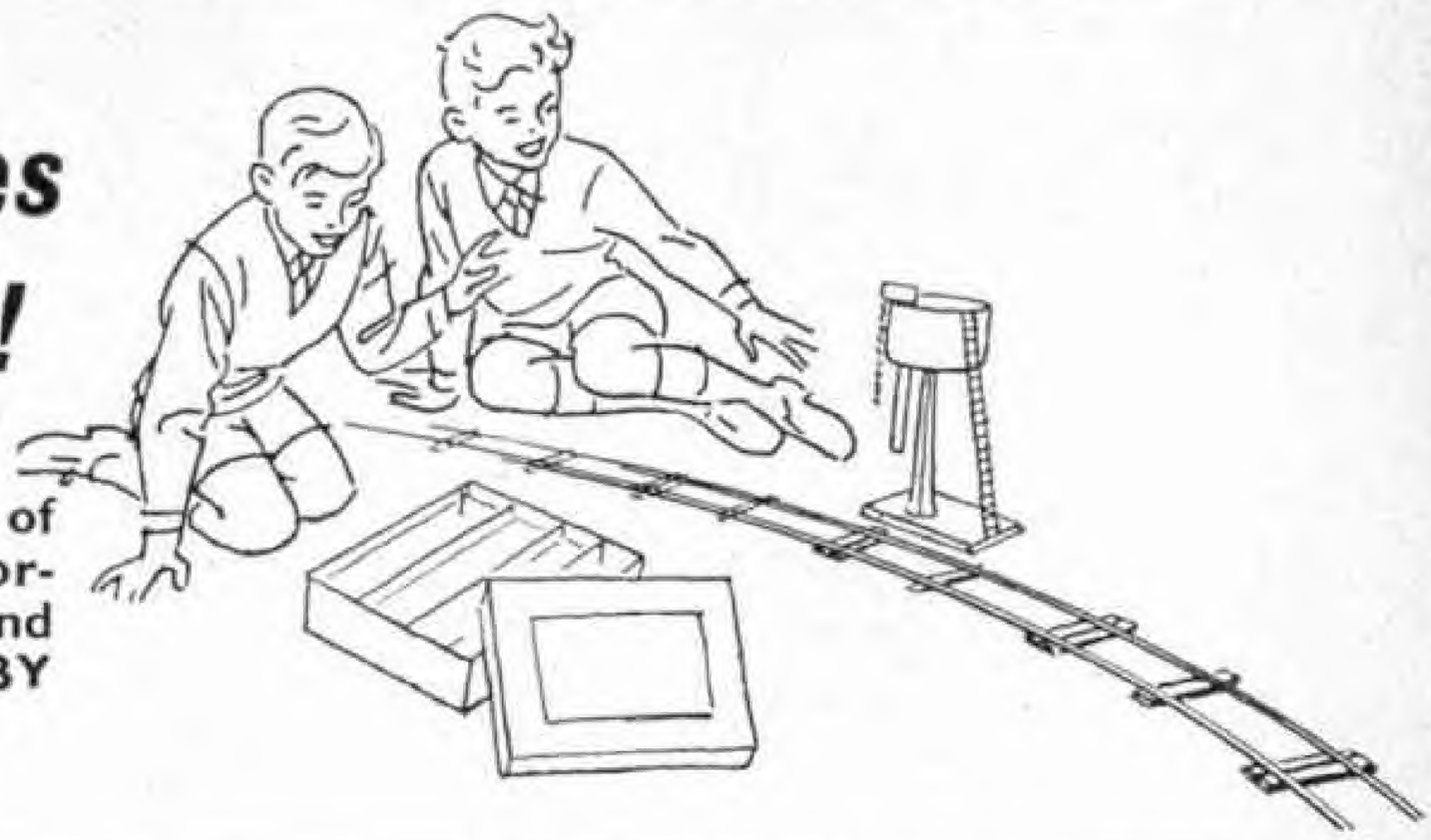
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No. 2 Junction Signal (home or distant)
Price **13/6**



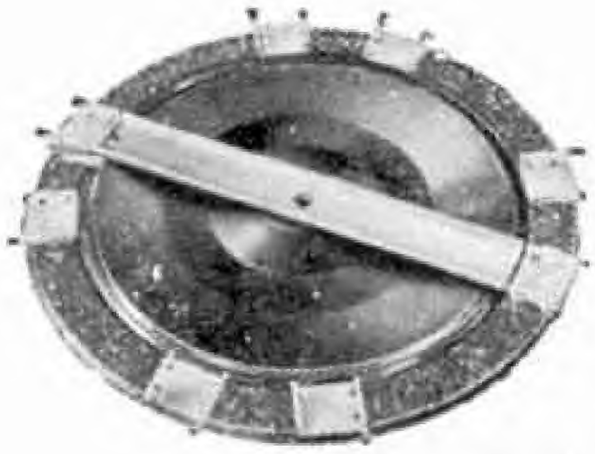
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Price **6/9**



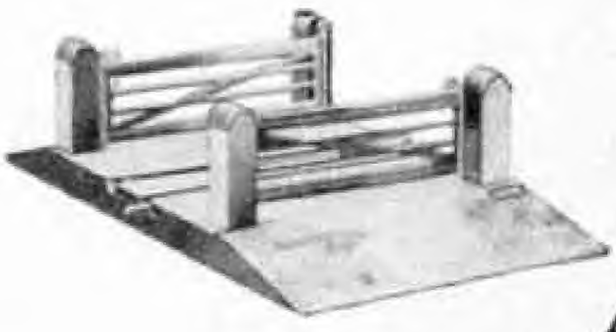
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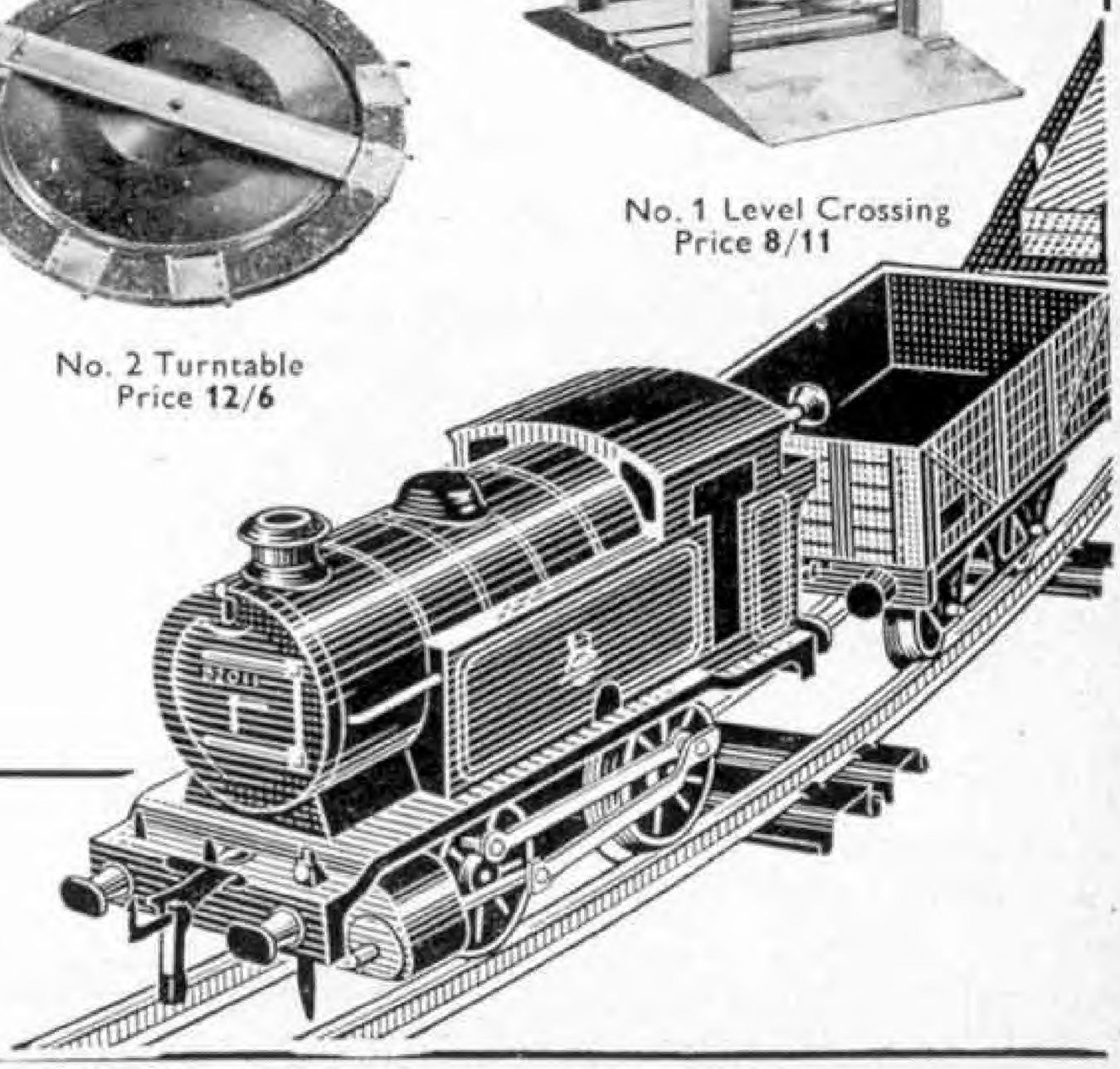
No. 2 Turntable
Price **12/6**



No. 1 Level Crossing
Price **8/11**



No. 1 Buffer Stop
Price **3/6**



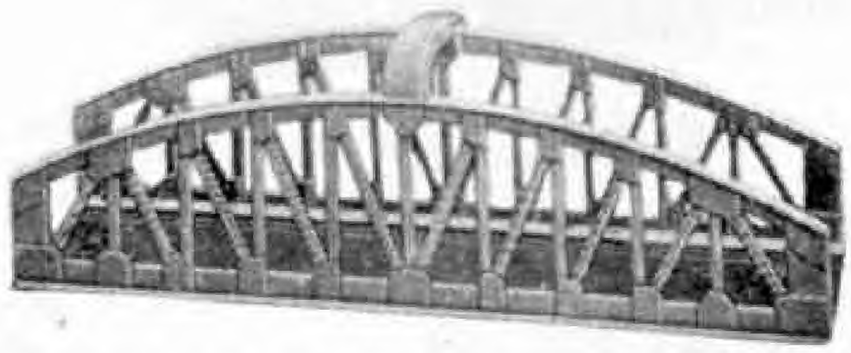
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HORNBY DUBLO ACCESSORIES

Does your Hornby-Dublo railway include these fine Accessories?

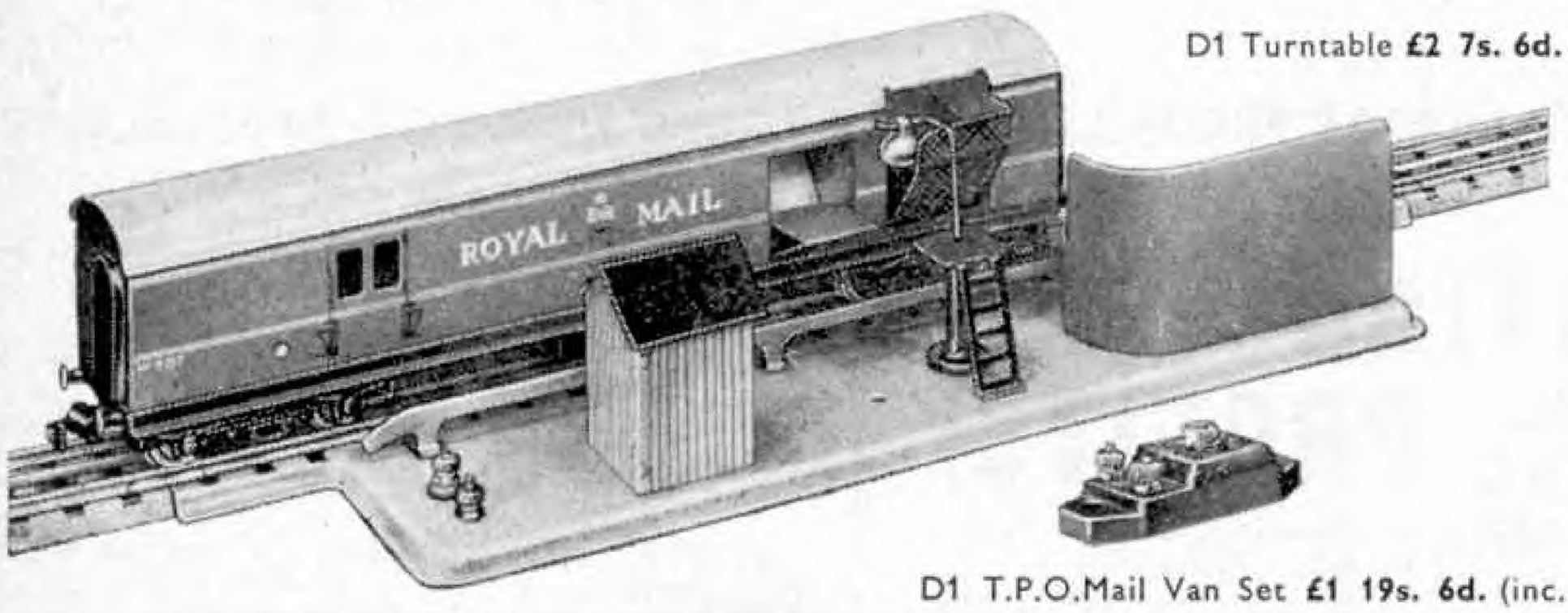
These realistic accessories add much to the fun of running a Hornby-Dublo model railway. The Girder Bridge can be used to carry your trains over scenic rivers or other tracks and with the hand-operated Turntable you can turn Locomotives in true railway style. You can run Mail Trains that collect and deposit mail whilst travelling at speed with the magnificent T.P.O. Mail Van Set illustrated below. See the range of Hornby-Dublo Accessories at your local Dealers.



D1 Girder Bridge **17/11** (inc. tax)



D1 Turntable **£2 7s. 6d.** (inc. tax)

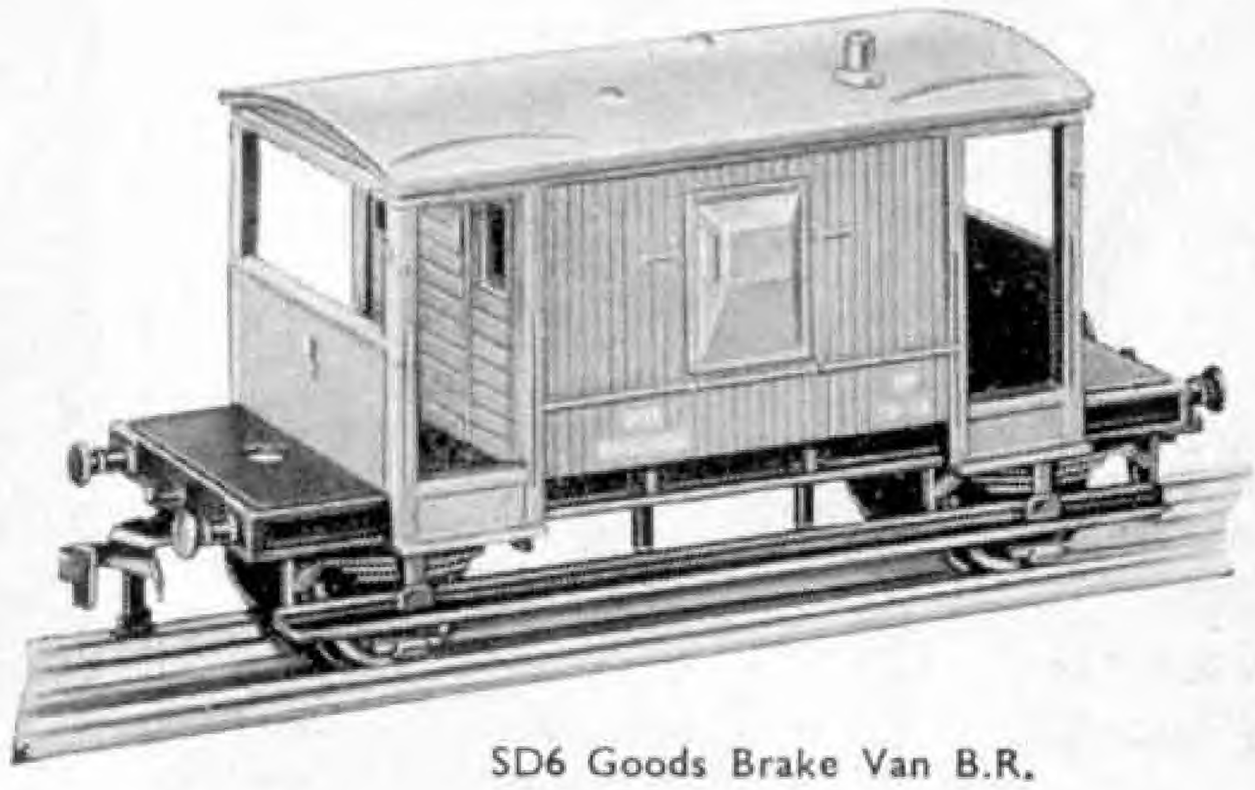


D1 T.P.O.Mail Van Set **£1 19s. 6d.** (inc. tax)

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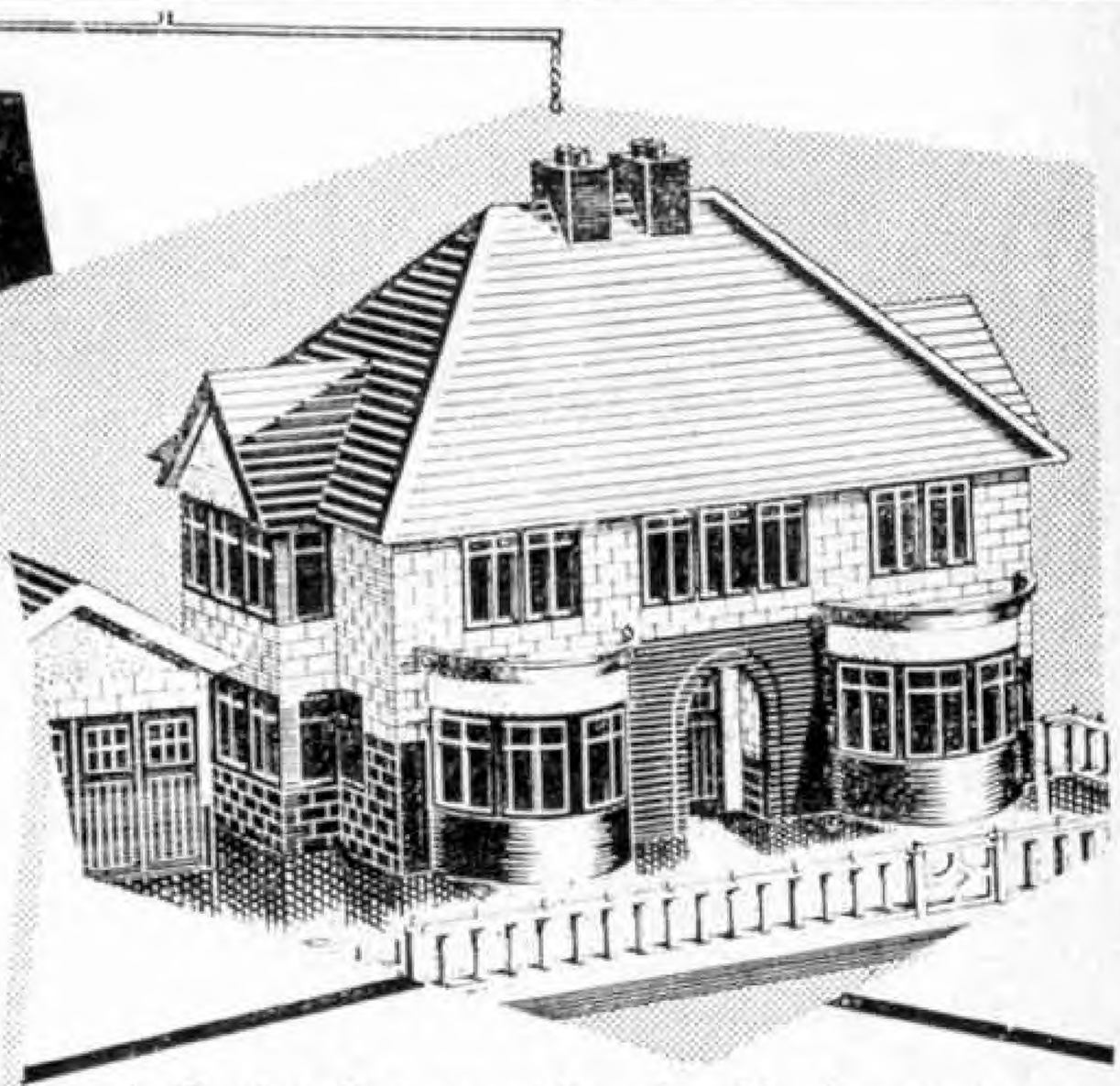
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SD6 Goods Brake Van B.R.

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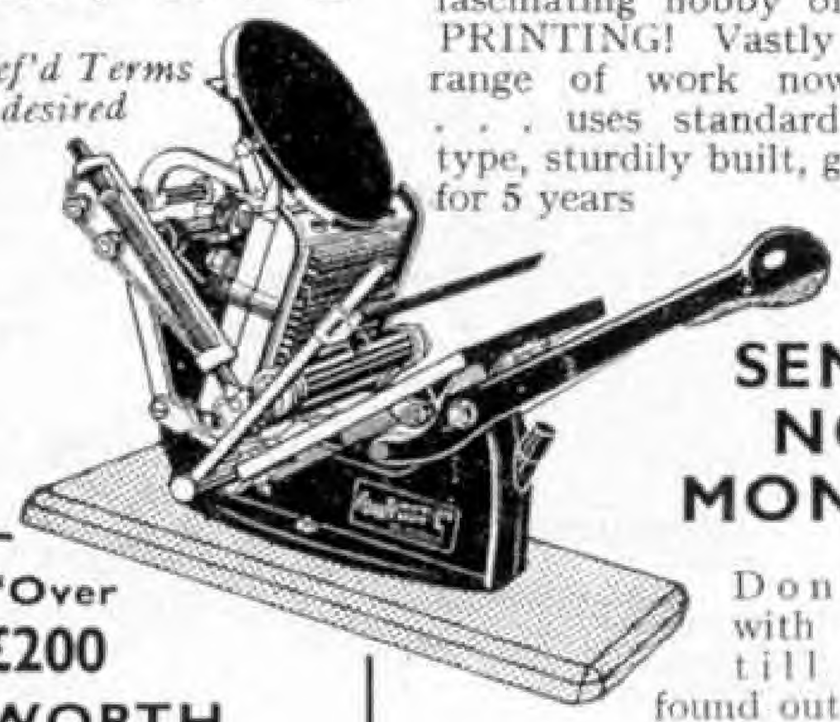
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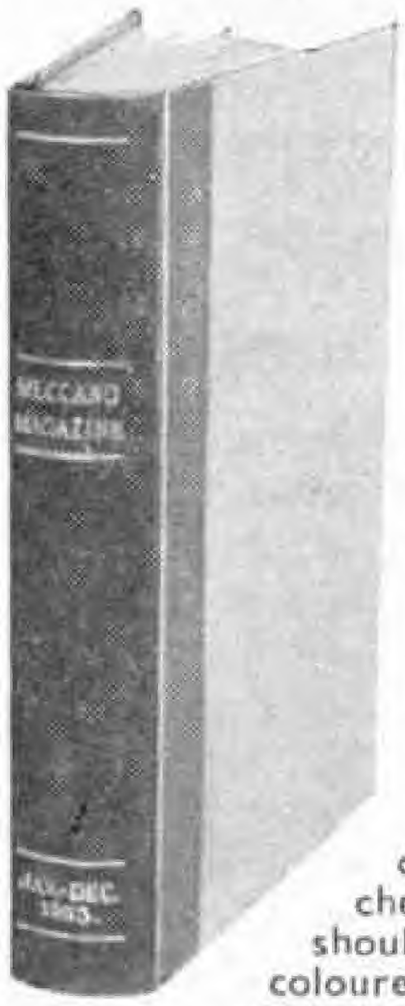
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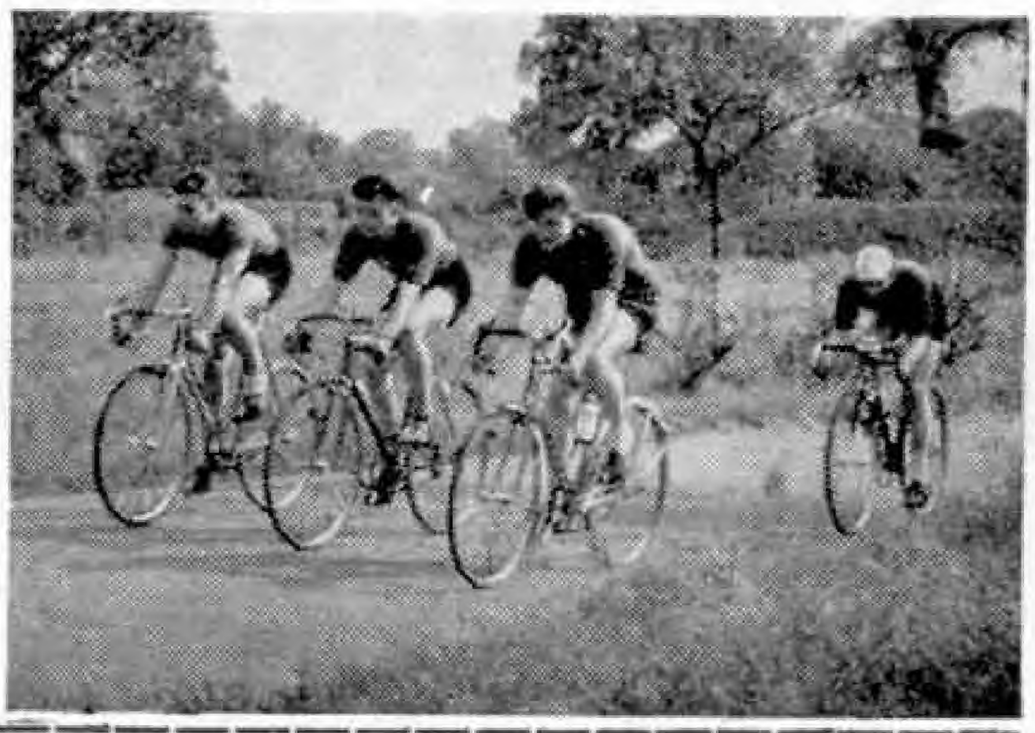
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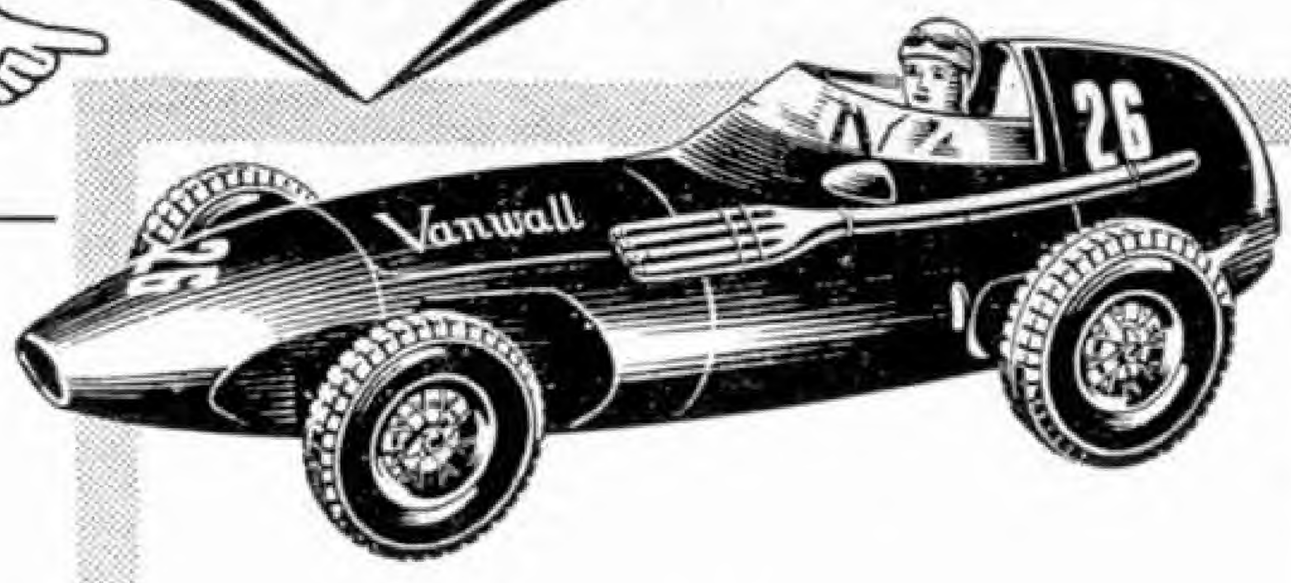
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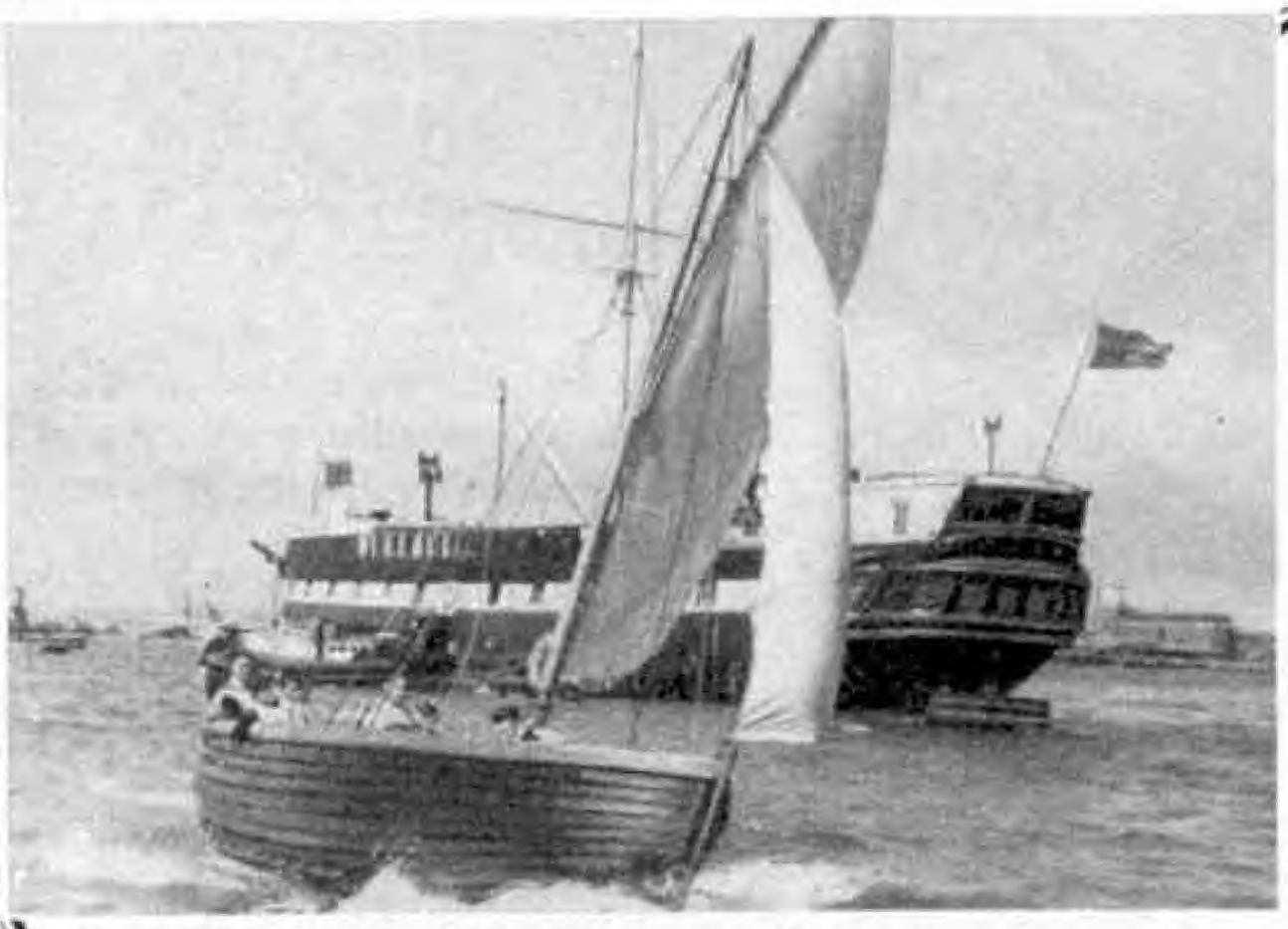
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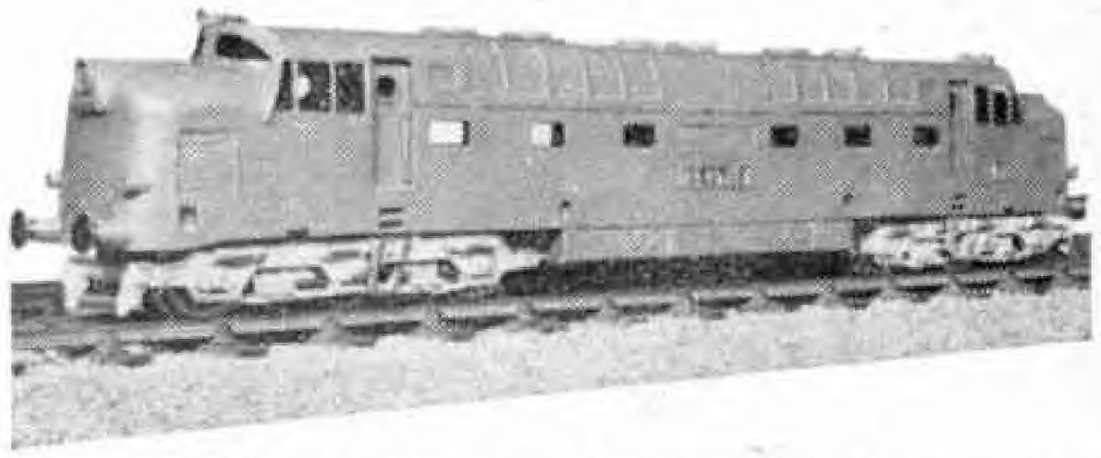
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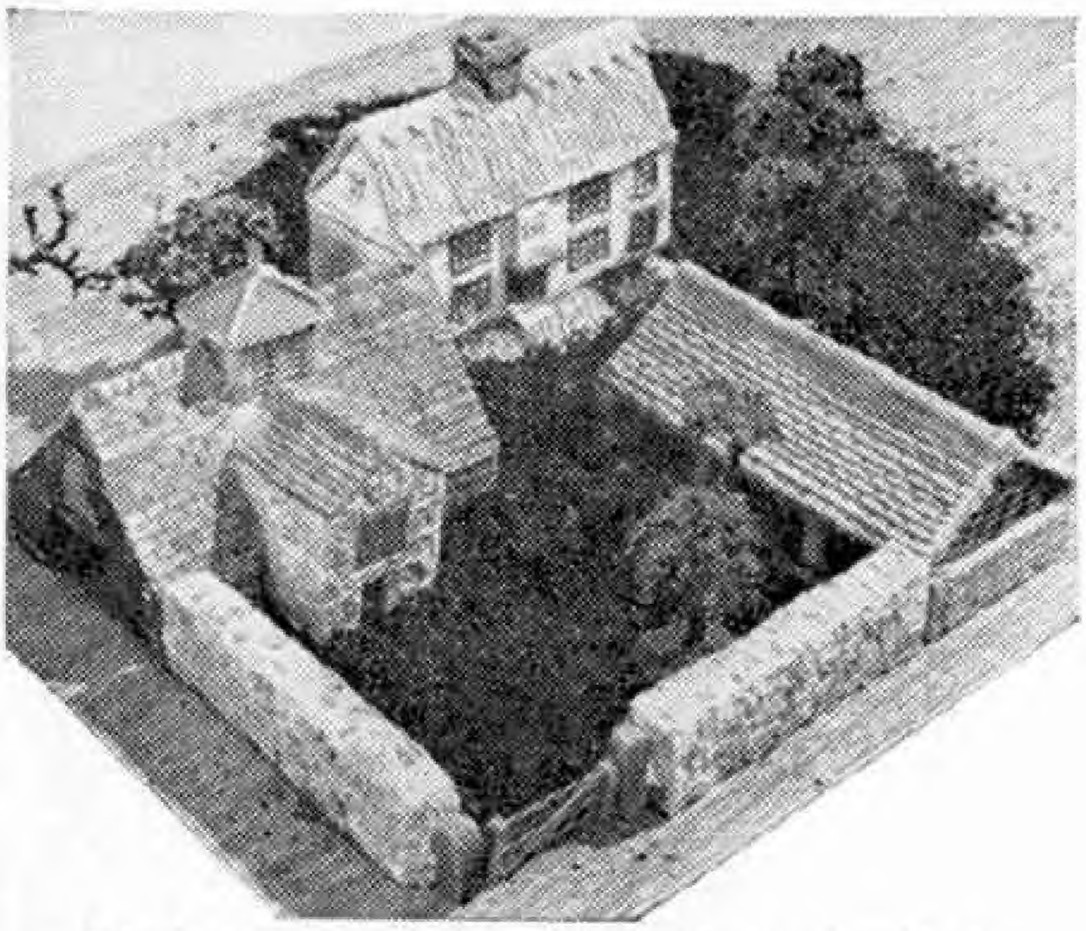
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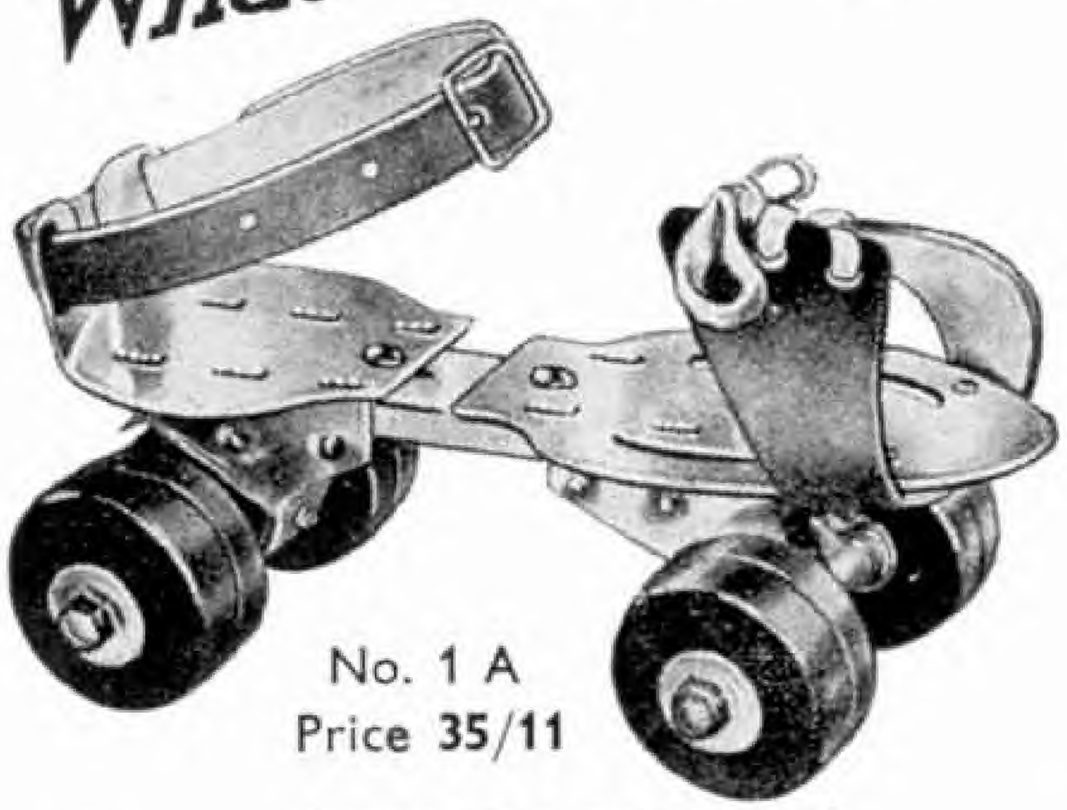
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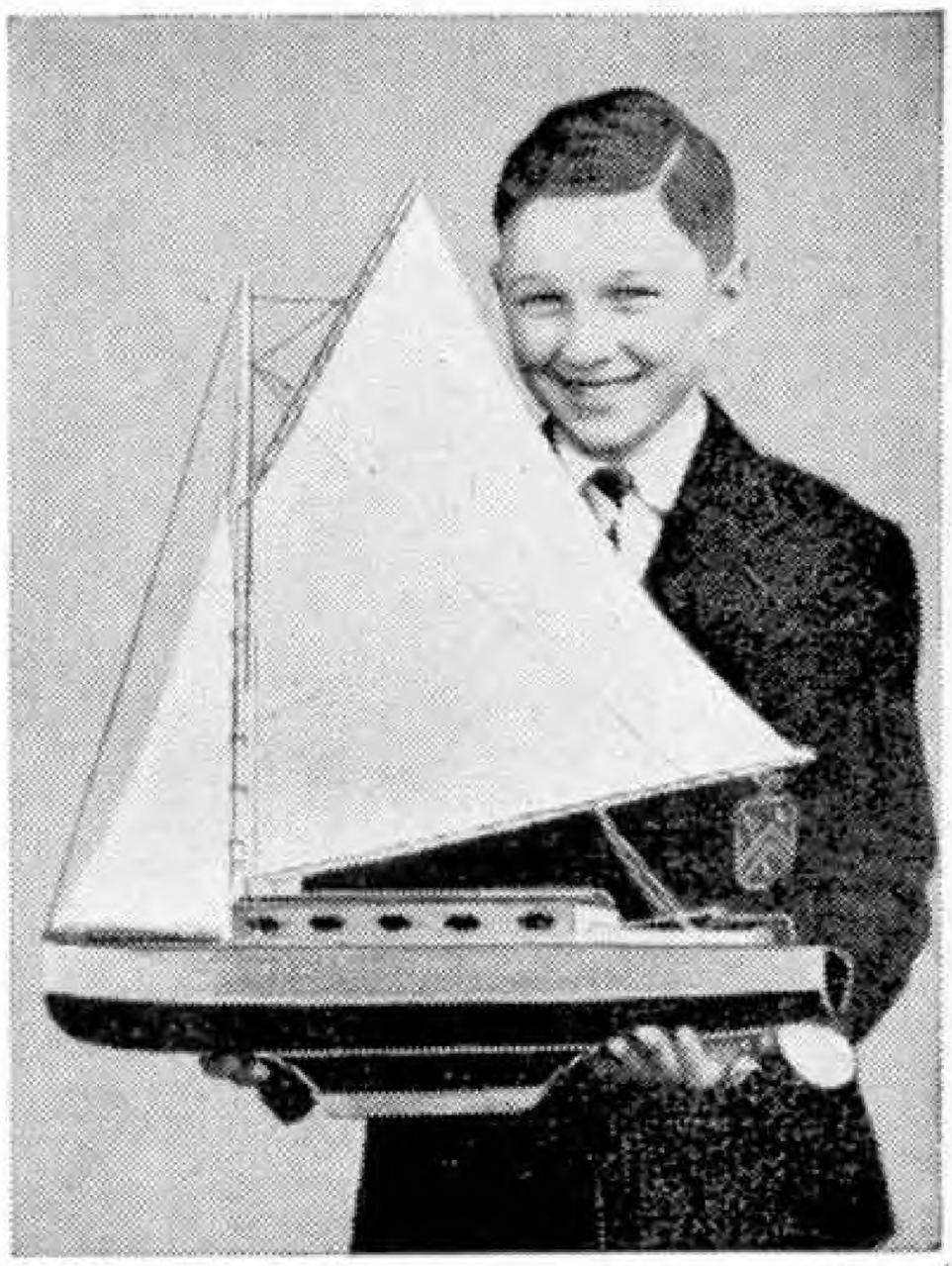
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"BUCCANEER"

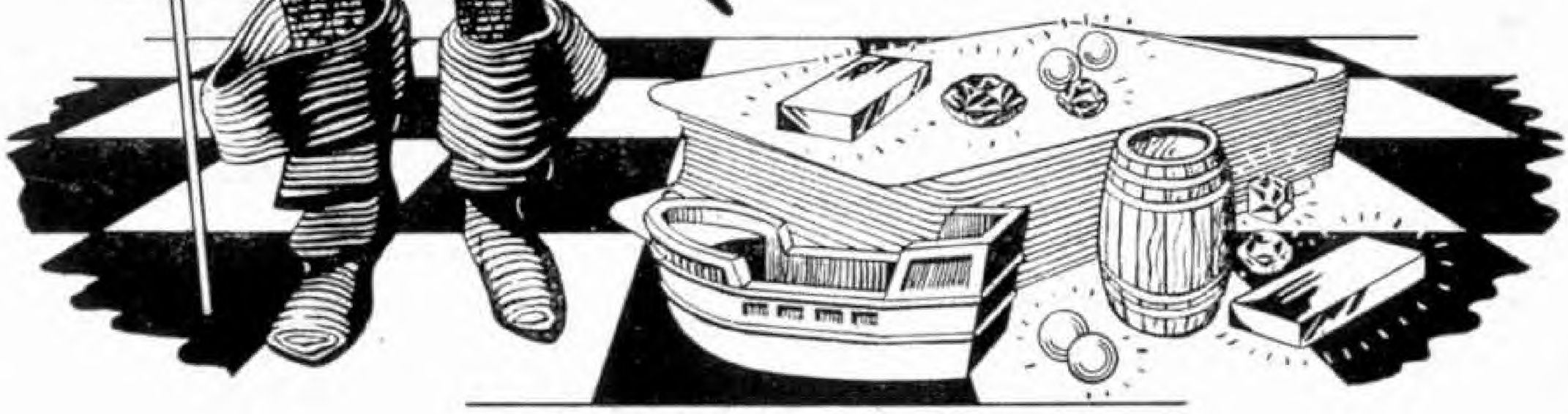
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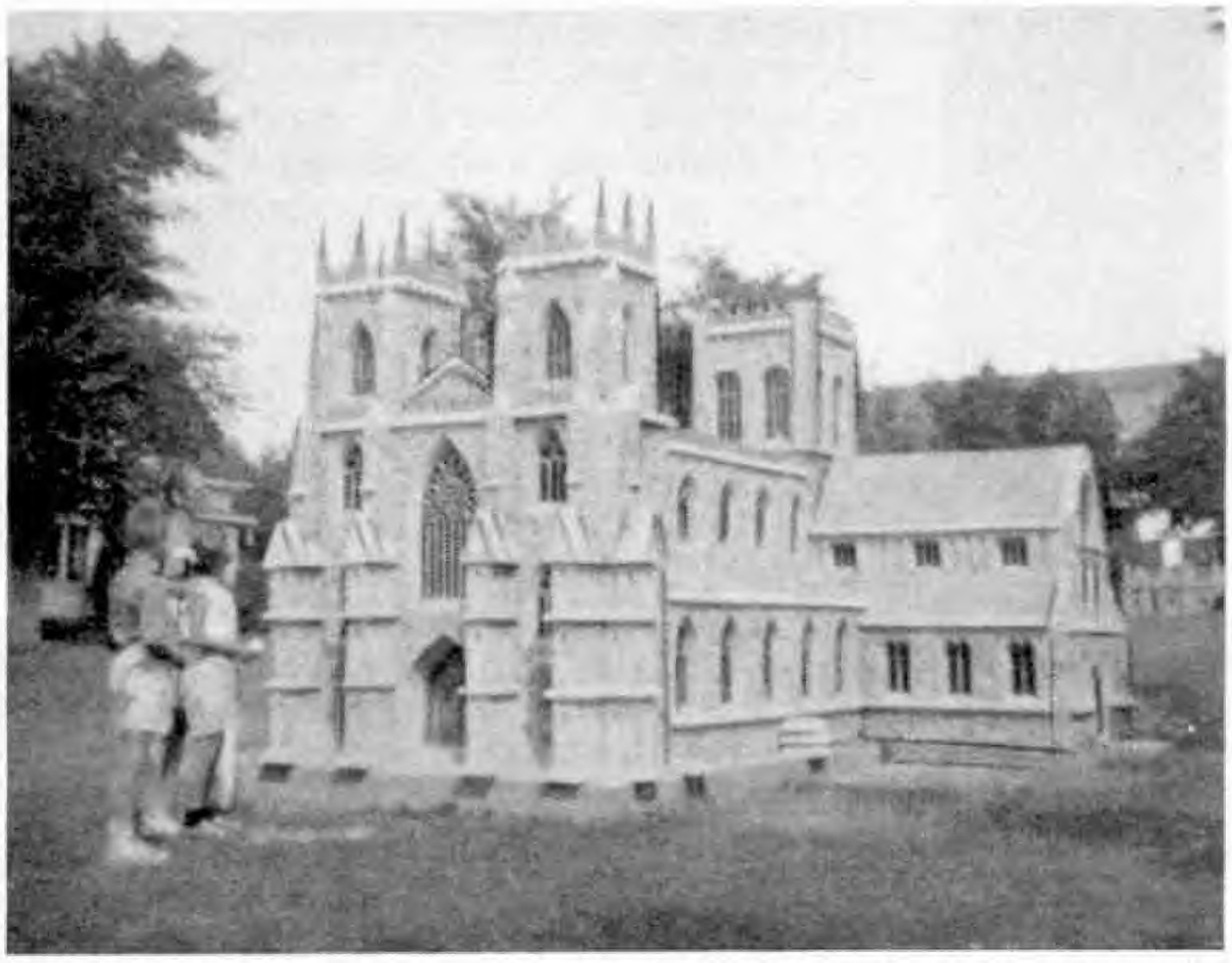
Editorial Office:
Binns Road
Liverpool 13
England

EDITOR : FRANK RILEY, B.Sc.

Vol. XLIV
No. 1
January 1959

Starting a New Year

I REMEMBER that a year ago I asked if there were any new way of wishing people a Happy New Year, that is any way that in its wording is entirely original. I have not thought of one myself, and apparently no reader has done so, for I am sure that if anyone of you had a novel idea he would have written to tell me about it. So let us forget that the words in which our good wishes are expressed are very familiar to everybody, and remember only the thoughts behind them. Like good wishes for Christmas, those for the New Year are always welcome and help us to realise that goodwill and friendship are among the most important things in our lives. Having said that, I will now wish you all A Very Happy New Year.



A Minster in a garden. Do you recognise it? More about this picture will appear in next month's *M.M.* Photograph by T. L. Coombs, North Scituate, Massachusetts, U.S.A.

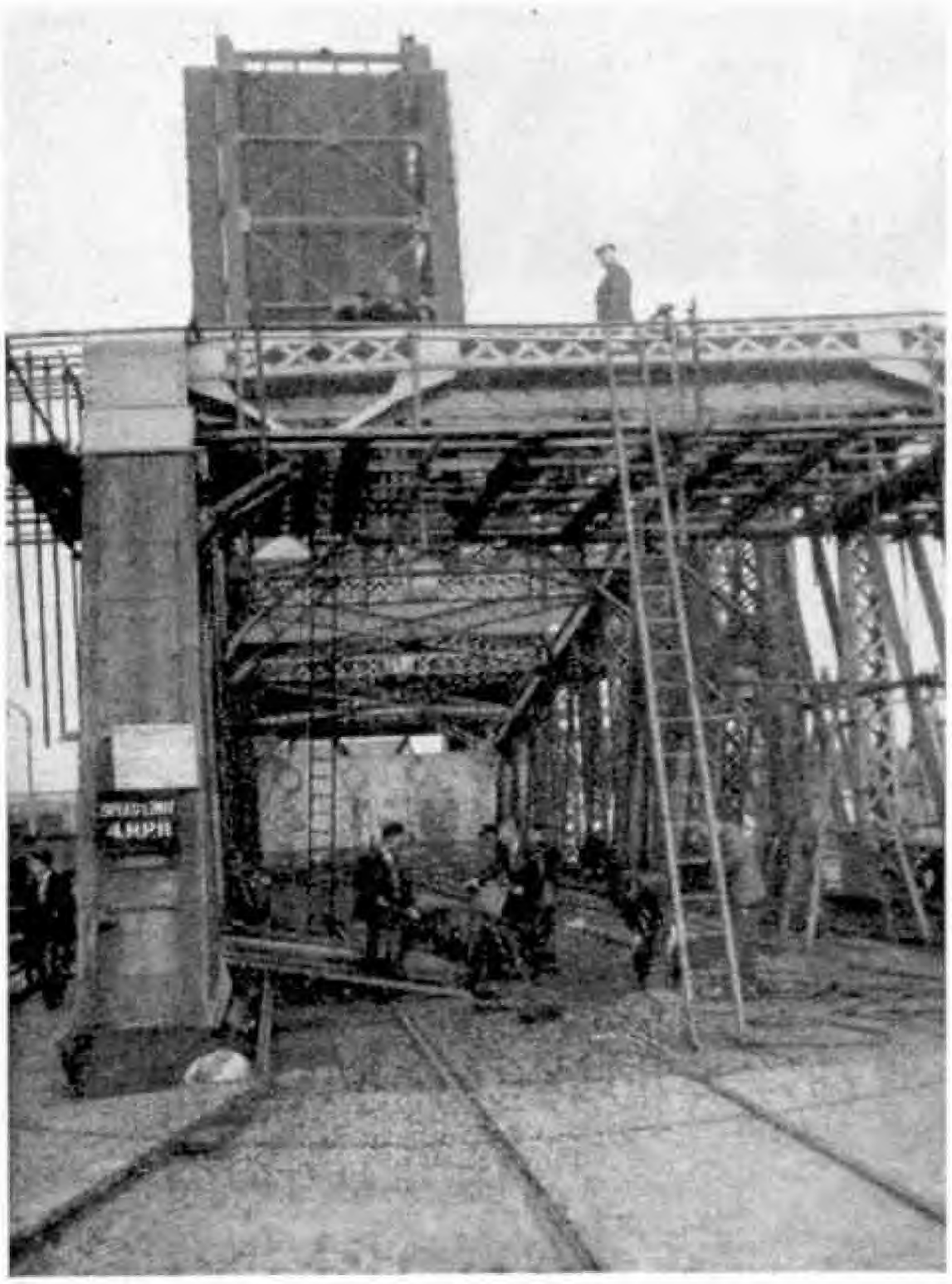
Where does the New Year start? That is a question that always comes to my mind at this time of the year. It begins at the moment when the clock strikes midnight on 31st December, but that time falls differently in the various regions of the Earth. For instance, the outburst of ships' sirens that celebrates the incoming of the New Year in a harbour in Holland sounds a full hour before a similar welcome is given in British ports, and in America the celebration is several hours later.

The New Year in fact goes round the Earth, but in our time reckoning it starts at the International Date Line, which runs from the North Pole to the South through the Pacific Ocean.

This Line is a curiosity. Every day begins there, and so when it is Sunday on one side of the Line it is Monday on the other! And if you set off from the Date Line, when it was midnight on 31st December there, to fly round the Earth westward, and completed the round trip in 24 hours, the New Year would be just beginning for you all the way. So *there* is a wonderful chance for a lengthy celebration.

By the way, the Date Line makes a diversion around islands in the Pacific. If it did not, people on them living next door to each other could be in different years for a whole day as the New Year started.

The Editor



In the Docks of Birkenhead

By D. G. Cooper, B.Sc., F.R.I.C.

THE borough of Birkenhead was only a hamlet at the beginning of the 19th century. It was on the site of an ancient Mersey River crossing, known as the Monks' Ferry. When a regular steam ferry started operating in 1817 it began to grow and from then on its rapid expansion has kept pace with that of Liverpool.

The first docks in the borough were opened in 1847, and ten years later the docks of both Liverpool and Birkenhead came under the control of the Mersey Docks and Harbour Board. Since then there has been a steady development of the docks on both sides of the river, although of course the Liverpool Docks are far more extensive. Today the area of the Birkenhead system is over 800 acres, with more than nine miles of quays. There are three sets of entrance locks from the river, and the system includes graving docks quite separate from those of the shipbuilding and repairing firms also established in Birkenhead.

Our cover this month shows a scene in the docks of Birkenhead today. Ships regularly using the docks sail mainly to Africa, India and the Far East, and belong to such famous shipping lines as the Clan, Hall and City Lines, Alfred Holt, etc. The Blue Funnel ships of the last named line in particular are a very familiar sight in the docks.

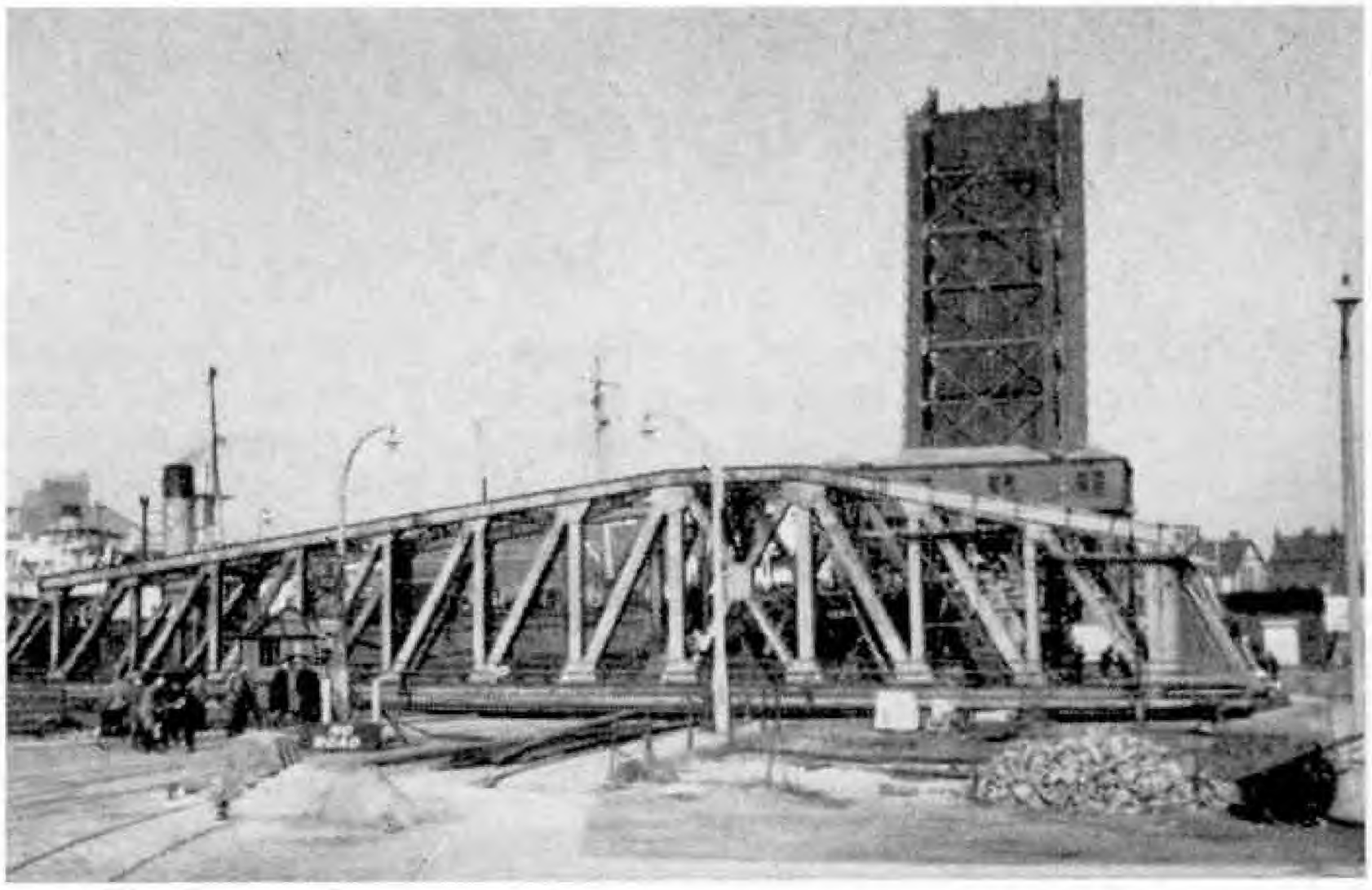
There are a number of items that are important exports or imports through Birkenhead, apart from general merchandise such as can always be seen at any port. Leading exports include locomotives and rolling stock, chemicals, electrical machinery and motor cars.

Bulk imports include iron ore, petroleum and wheat. Iron ore is handled in the Bidston Dock, where are the three up-to-date electrically-operated transporters that were described in the *M.M.* for July and September 1957. These have a capacity of about $1\frac{3}{4}$ million tons of ore a year. Most of this is sent by rail in 25-ton wagons direct to John Summers Iron Works at Shotton, on the Dee, about 15 miles away. There it is converted into pig iron in the blast furnaces. This in turn is converted into steel, largely for use in making steel plate for motor cars, refrigerators and many other products.

The picture above shows repairs being carried out to a swing bridge, on a route across Birkenhead Docks on which there are four bridges. One of these, a rolling lift bridge, is seen raised in the background. Photographs illustrating this article, and the colour photograph on which our cover is based, were taken by the author.

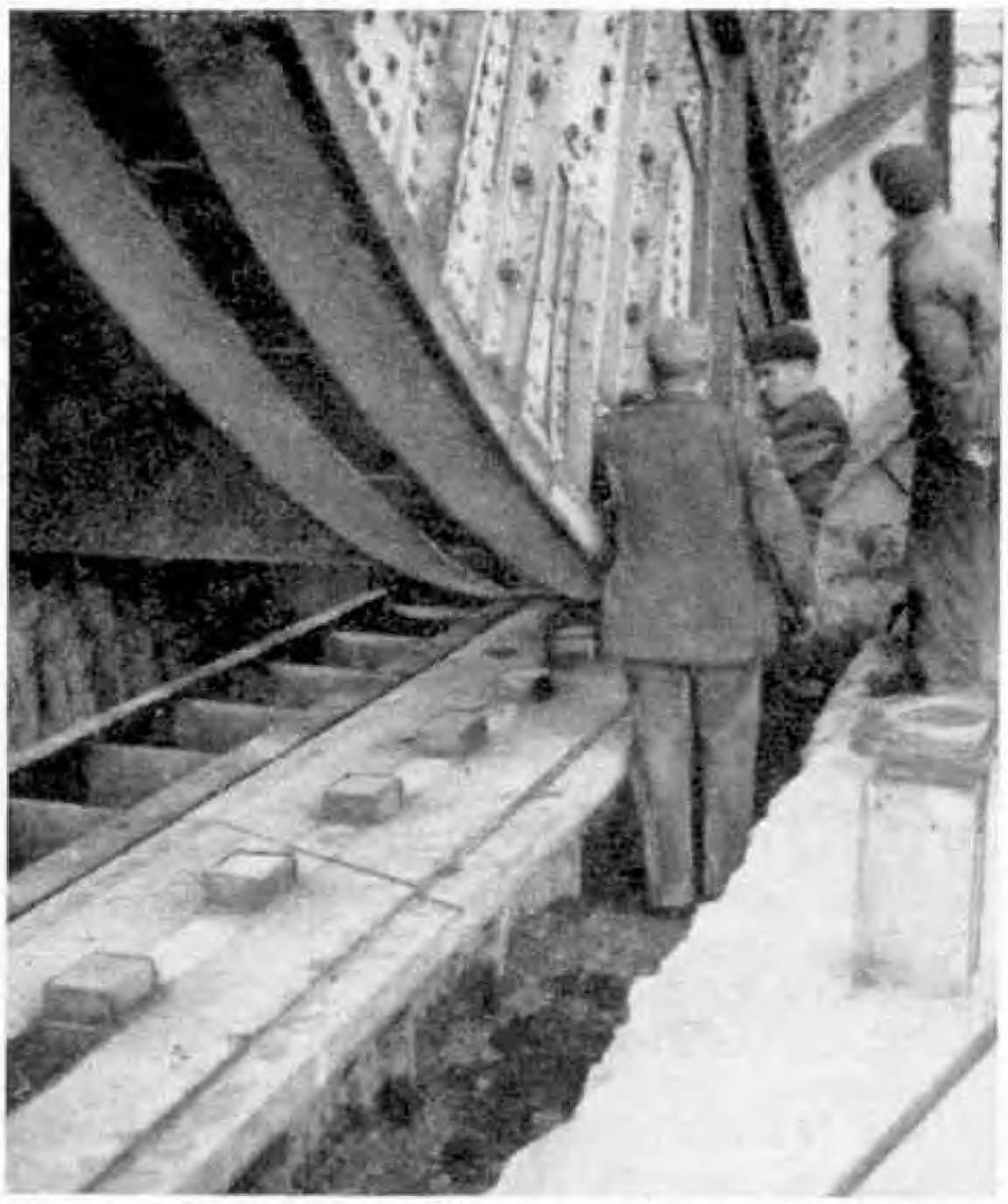
The Bidston Dock is the newest as well as the innermost of the docks. Facing it is the Mobiloil works, on the shore of the West Float. It is there that thousands of tons of lubricating oils and greases are handled yearly. Nearby are a number of flour mills, for Birkenhead is one of the world's greatest milling centres. The wheat is sucked up from the ships by pneumatic machinery and stored in huge silos, from which it is fed continuously to lower floors of the mills for conversion into flour.

The docks extend for more than two miles inland from the River Mersey, and



A swing bridge in Birkenhead Docks open for dock traffic.

beyond them to the north of Birkenhead is the residential area of Wallasey and New Brighton. Thus there is the need for bridges across the docks, both to serve these places and to allow trains and lorries access to the north side of the docks. All bridges open to give passage to ships; there are seven bridges of two main opening types—swing bridges and rolling lift bridges. The disadvantage of the former is that they need much more space in which to operate. The rolling lift bridges are operated by hydraulic power, and move surprisingly quickly. When closing, they drop rapidly until there is a gap of about two feet, then pause and engage low gear for the rest of the way. This avoids any damage to bridge or supports.



Work in progress on a rolling lift bridge in Birkenhead Docks. The studs over which the bridge rolls when being raised or lowered can be seen.

The bridges provide three main routes across the docks, and one of these involves no fewer than four bridges. As this route is very near the entrance locks from the river, one or more bridges are frequently found open at or near high tide. This involves considerable delay to road traffic, for shipping always takes priority. The colour photograph on which our cover is based was taken from near one of the four bridges, which was open. One of the boys seen on it was watching the bridge, while the other was concentrating on the loading of the ship in the background, the *Jalrajendra* of the Scindia Line. The floating crane beyond this vessel is *Samson*, which has a lift of 30 tons and is self-propelled. Our illustrations include pictures showing work in progress on repairs and maintenance on two of the four bridges of the route.

Largely because of the numerous bridges across the docks, it is much easier in Birkenhead than in most ports to watch loading, unloading and ship movements, as well as the rail and road transport also involved, and there are indeed many excellent vantage points. Modern diesel locomotives are used, as well as older steam ones; and alongside the railway one is quite likely to see locomotive axles for export, brought in on horse-drawn transport.

There is a wealth of inspiration too for the Meccano enthusiast visiting the docks in the different types of cranes and bridges to be seen there. For instance, a visitor may quite likely see the giant floating crane, the 200-ton *Mammoth*, in actual use, or perhaps being moved from one dock to the next.

On the Narrow-Gauge in Spain

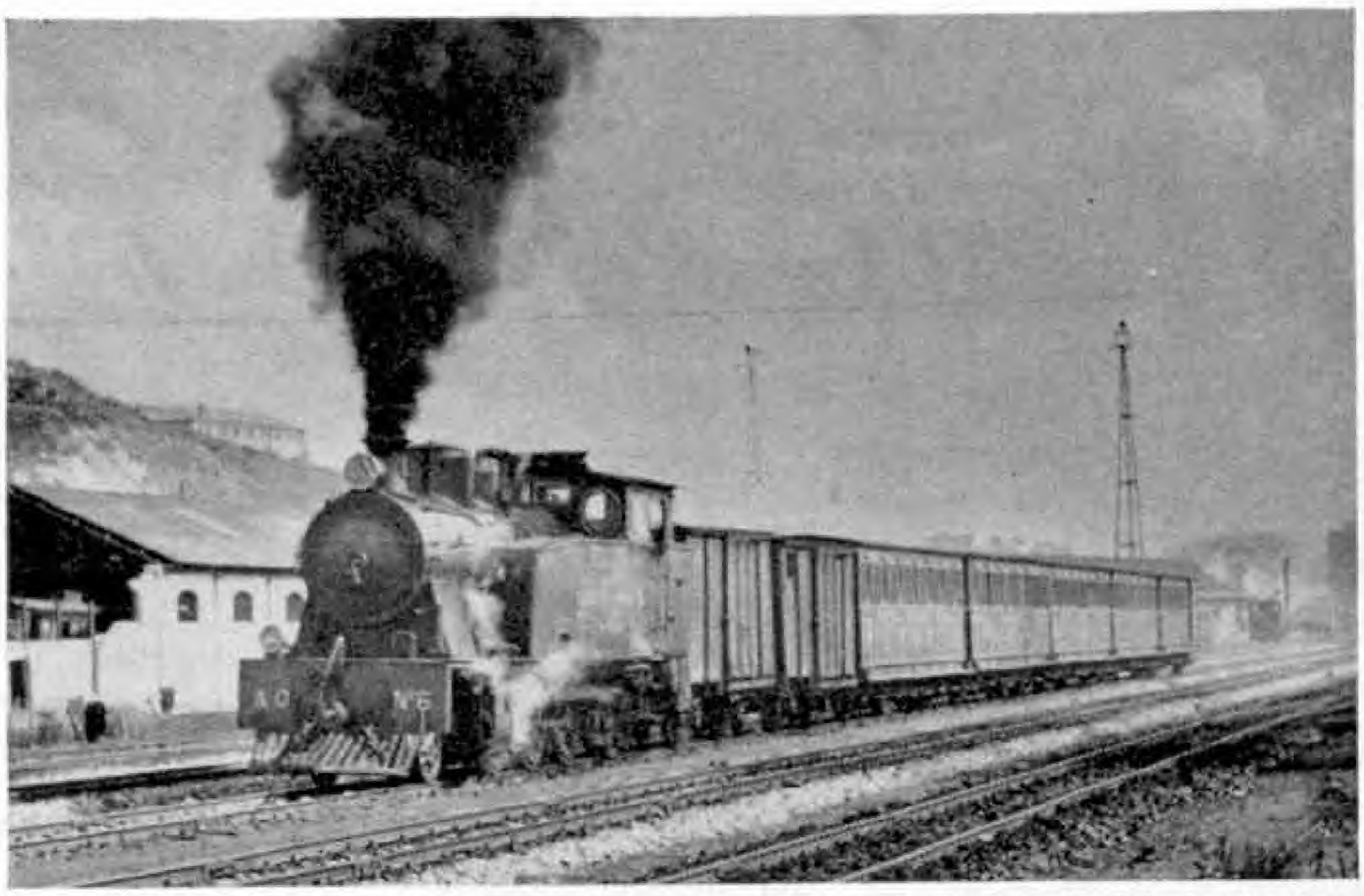
By R. K. Evans

THROUGH the courtesy of the Spanish authorities, I have been able to travel extensively by rail through Northern Spain and to visit several installations of railway interest. Spain is an almost square country containing a central plateau ringed by relatively high mountains, with the principal city, Madrid, almost in the centre. This necessitated from the first some consideration being given to the choice of rail gauge, which for strategic reasons, as in Russia, was designed to prevent through running with rolling stock of other European countries.

In the event a gauge of 1.674 metres, which is about 5ft. 6 in., was chosen as standard by the four companies involved in the construction of Spain's principal railways, which became respectively the Andalusian, Northern, National Western, and the Madrid, Zaragozza and Alicante Railways. Although a broad gauge such as this is ideal in level country, it has serious disadvantages in the type of mountainous country with which the Spanish central plateau is ringed, and for this reason there came into being several narrow-gauge systems. A large number of these, principally of metre gauge, are found in the fertile and well-populated mountain areas of Navarra, the Basque Provinces and Asturias, in Northern Spain.

Altogether this metre-gauge network comprises a quarter of Spain's 11,000 miles of track and some fifty companies are involved. Eighteen of these are now under the control of the Spanish National Railways, or RENFE, formed in 1941 by the nationalisation of the four principal standard-gauge systems. The abbreviation RENFE, incidentally, stands for *Red Nacional de los Ferrocarriles Espanoles*. It has passed into the Spanish language as a word in its own right, and is often heard in conversation.

It was already a hot summer morning when, with a friend who had travelled with me on the *Iberia Express* from Paris, I first stepped on to Spanish soil at Irun. Though through running is impossible, the mile or so of track between the frontier stations of Hendaye, in France, and Irun, on the Spanish side of the border, is duplicated to make interchanging easier. In the south-bound direction Customs examination is made at Irun, and it was from that station that we set out to begin our acquaintance with the network of metre-gauge lines that meander along the coast to arrive eventually at San Esteban, some 320 miles to the west.



2-6-2 tank No. 6 "Penagos" leaves Santander for Astillero over the track of the Santander-Bilbao Railway.

In addition to the imposing standard-gauge station, from which the heavy electric-hauled international expresses set off for Madrid, Irun boasts a further three stations, one of the standard gauge used by the brown-coloured multiple-unit electrics that shuttle to and from San Sebastian, one metre-gauge, and one 3 ft. gauge. At the last of these are the headquarters of the Bidasoa Railway, which reaches into the



An all-stations "Corriente" train from Santander to Oviedo pauses at Torrelavega. At its head is 2-6-0 locomotive No. 23 "Turujal".

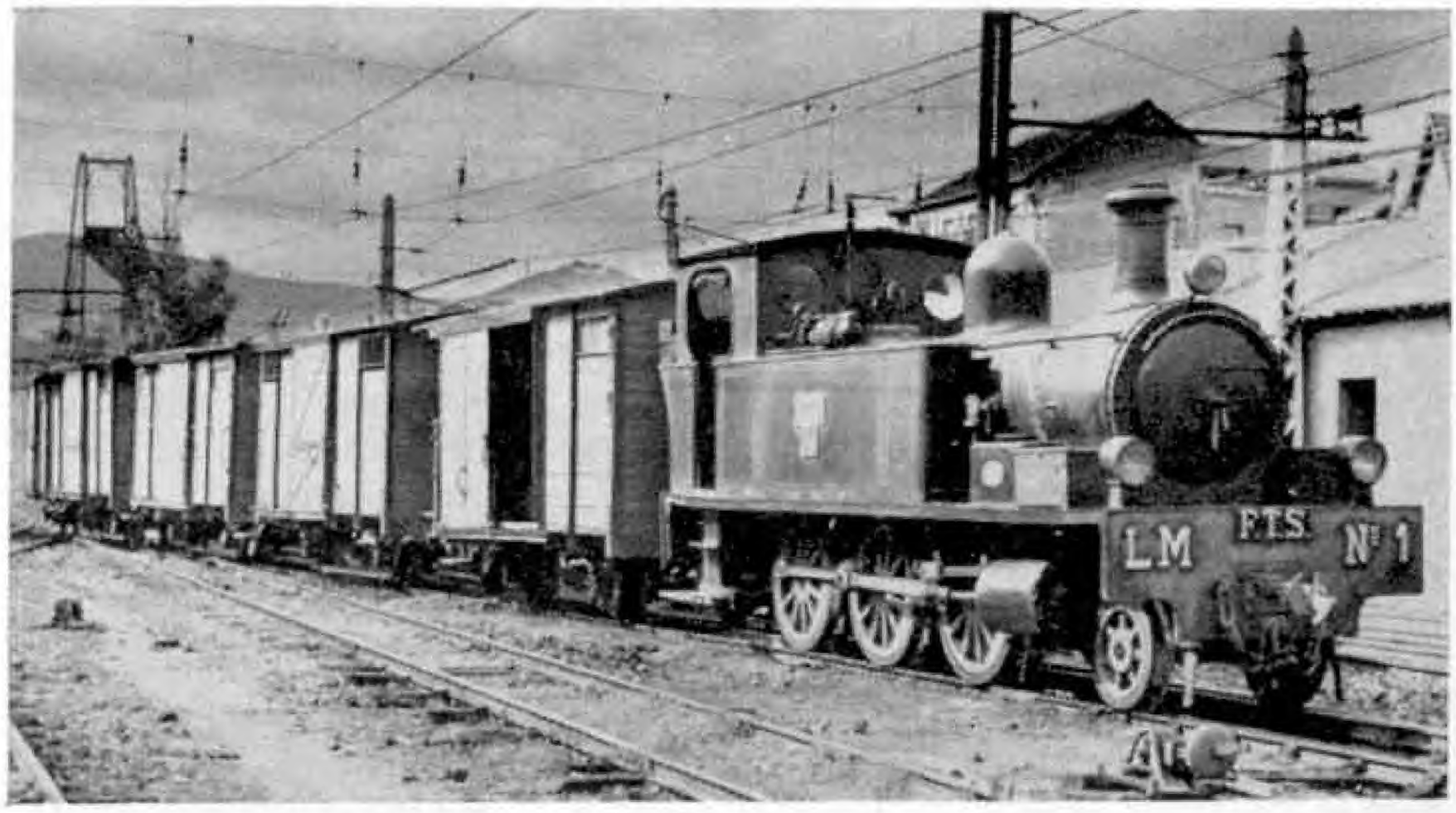
Pyrenees and terminates at Elizondo. I should say *were* the headquarters, for track-gangs were at work lifting the rails, the smart Kerr-Stuart tanks and the impressive Belgian-built 2–6–0's, one of which then simmered gently in the sunshine, being destined for scrap.

Then back towards the centre of the town, and to the still active metre-gauge electric line that meanders between Hendaye and San Sebastian, calling at villages and halts forgotten by the more direct RENFE trains. Here a well-patronised service of blue-and-cream cars augurs well for Irun possessing an active narrow-gauge line for some years yet.

The journey to San Sebastian, with eight intermediate stops, takes some forty minutes and ends at the suburb of Amara. The station here is in turn the eastern terminus of the extensive and flourishing Vascongados Railway, over which we were to travel along the coast to Bilbao. The metre-gauge Vascongados system is almost completely electrified, and our train consisted of four varnished teak coaches hauled by an electric motor-coach. To a steam enthusiast this was not the acme of interest, but the journey was pleasant enough, although not through such spectacular country as we were to meet further west, and the riding of our coach left little to be desired. Track maintenance was obviously good, and the stations were clean and usually freshly-painted.

Highlight of the journey, perhaps, was the discovery at Durango, the principal intermediate station, of one of the last steam engines still in service, an immaculately clean 2–6–0 tank built by Nasmyth Wilson in 1894. This was truly a wonderful sight in the evening sunshine.

Bilbao, western terminus of the Vascongados, is a large, bustling industrial city that hides a surprising number of railway stations amongst its less frequented streets. The main RENFE terminus is an



The daily freight train on the otherwise electrified line from Bilbao (Aduana) to Las Aranas at the latter place, with No. 1 "Orive", one of the two steam engines owned by it.

imposing cathedral-like structure with platforms on a higher level than the concourse, the inner end of which is entirely spanned by a vast stained-glass window depicting the industries of the city. The whole building is reminiscent of New York's Grand Central Terminal, but is on a smaller scale. As there are only about eight main line departures every 24 hours, most of them during the night, the station presents an unusually deserted appearance for much of the day.

A much more lively appearance is afforded by the busy Naja terminus of the former standard-gauge Bilbao-Portugalete Railway one of the several suburban lines terminating in Bilbao. As the line is completely electrified, its displaced steam locomotives may be seen shunting at the RENFE goods yards around the city.

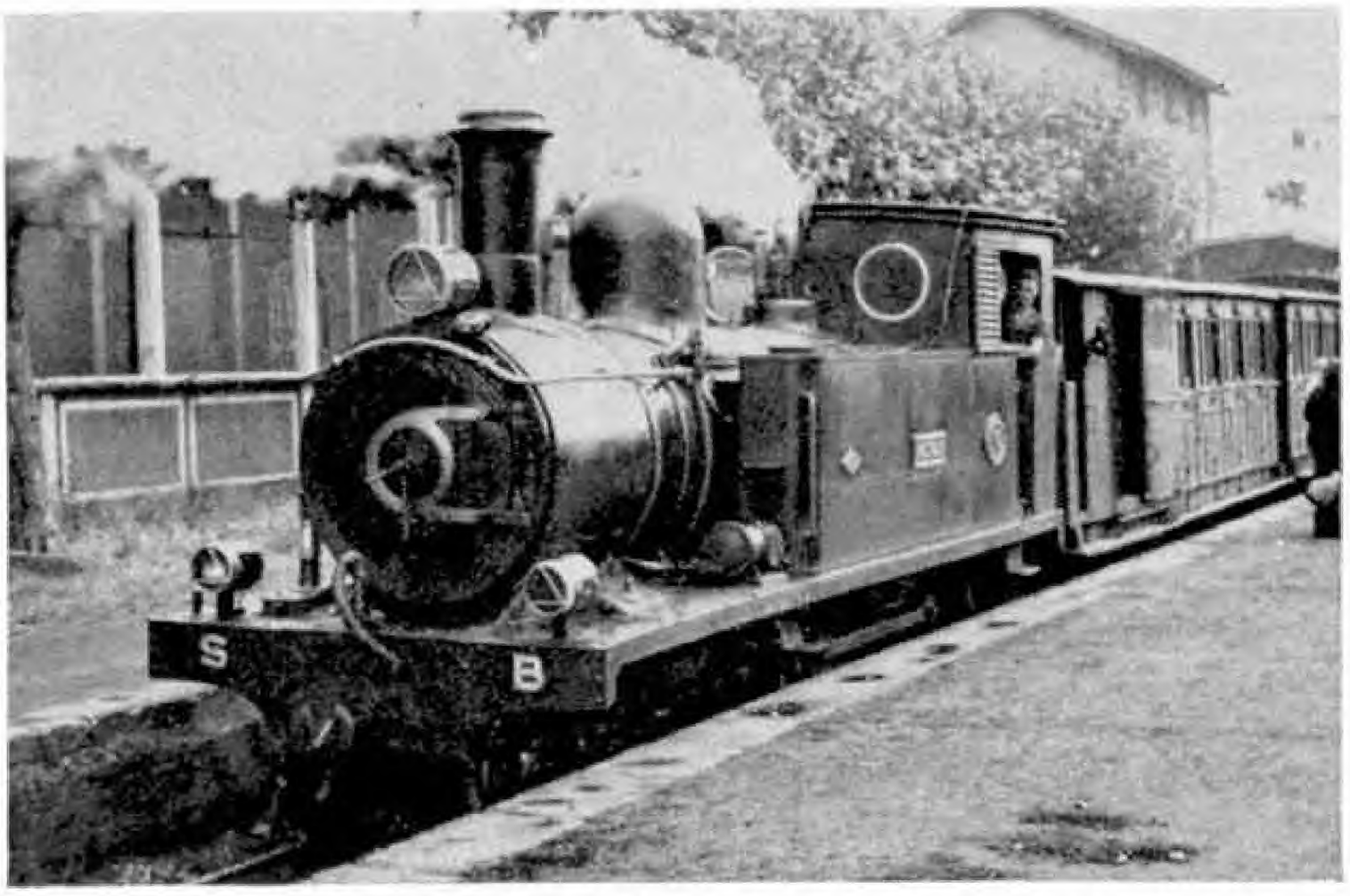
Nearby is the Concordia terminus of the metre-gauge Santander-Bilbao Railway, used also by the infrequent trains of the La Robla Railway. This line forms the main line to La Robla and Leon, almost 210 miles to the south-west, the longest metre-gauge main line in Europe.

One passenger train runs daily between Bilbao and La Robla, and the principal traffic over this heavily-graded line is from the Asturian coalfields down to Bilbao; for this purpose the railway uses four fine 2–6–2 + 2–6–2 Garratt locomotives, two purchased from Germany and the others built in Spain. The impressively modern workshops of the company are situated at Valmaseda, deep in the mountains about twenty miles from Bilbao. Here, in addition to two of these Garratts, we found a fine selection of steam power, including some of the displaced Vascongados engines bought by the Robla, and a number of two-cylinder compound freight engines built in Switzerland.

The Santander-Bilbao Railway, which we followed the next day, passes through some of the most striking scenery in Spain, alternately skirting the coast and tunnelling through cloud-wreathed mountains. The 75-mile journey occupies some four hours and is well worthwhile.

Santander itself was badly damaged by fire in 1940, both the metre-gauge station and the adjoining RENFE terminus being destroyed. The opportunity was taken to rebuild them both with a very attractive single frontage opening on to a large square; the single-track RENFE line to the harbour emerges between the two stations and crosses the square between neatly-trimmed hedges. The metre-gauge station is used by both the Santander-Bilbao and the Cantabrian Railways, while the smart green 2–6–2 tanks of the Astillero-Ontaneda system have running powers over the Santander-Bilbao as far as Astillero.

The Cantabrian Railway main line to Oviedo parallels the Santander-Bilbao track for some two miles, then strikes out westwards, climbing over the adjoining RENFE main line to Madrid, and climbs inland to Torrelavega. The traffic as far as here justifies the use of three or four extra coaches on each through train, so that our morning train to Oviedo consisted of thirteen coaches behind two powerful 2–6–0 locomotives with articulated tenders. Unlike most British trains, which seem to be photographed every few miles of their journey, we went on our way apparently unrecorded, but even seen from the rear coach our train presented a most impressive spectacle as it blasted its way round the tortuous curves.



The 3.25 p.m. from Valmaseda to Bilbao photographed at Aranguren with 4-4-0 tank No. 110 "Molinar", one of eleven built by the North British Locomotive Company.

At Torrelavega the three coaches at the rear were detached, together with the leading locomotive. The next stop of interest is Llanes; here the Cantabrian system ends and the (*Continued on page 34*)

Transatlantic Jet-Liners

By John W. R. Taylor

ALMOST everyone in Britain felt thrilled and proud when the Comet air liner celebrated its return to the airways by opening the first-ever jet passenger service over the North Atlantic on 4th October last.

For weeks previously the newspapers had been full of rumours and reports of a race between B.O.A.C.'s Comets and Pan American's Boeing 707s, and the U.S. company had even put up large posters proclaiming that it would be first across. But there cannot really be any race where the safety of passengers is involved, and B.O.A.C. led the way for three very good reasons.

As a start, its aircrews had by October an immense and unrivalled experience of flying jet air liners, to the extent that 120 of them had logged a total of 15 million miles in the Comet, almost all under genuine airline conditions. Secondly, de Havilland employees had worked so hard that the company was able to deliver the first three Comet 4s well ahead of schedule. And, thirdly, the Comet itself is a quite remarkable aeroplane, presenting few of the problems that are being, and will be, encountered with other jet air liners.



B.O.A.C.'s first Comet 4, G-APDA, flying over Hatfield, Herts. A de Havilland photograph.

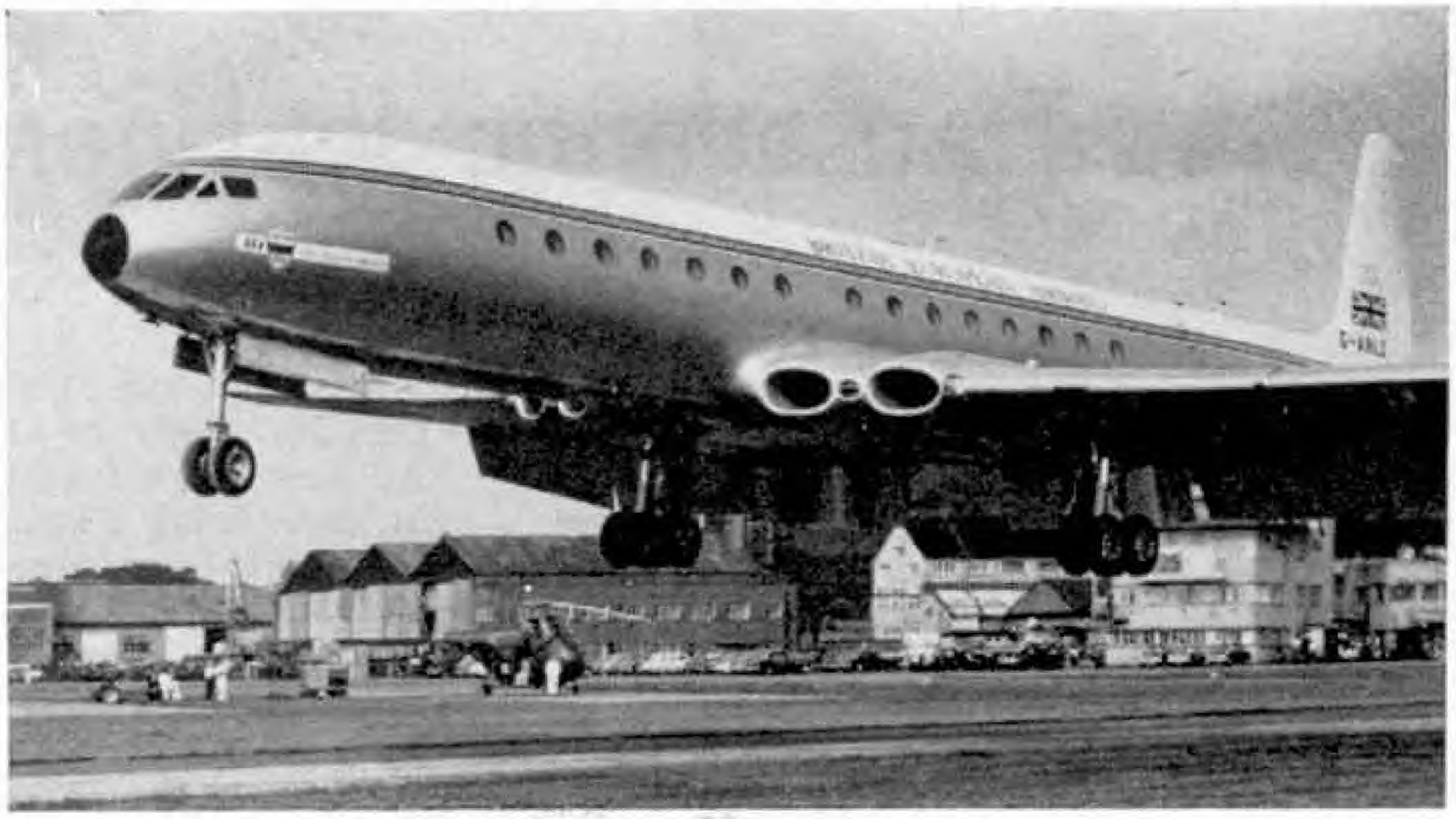
This implies no criticism of the Boeing 707 or its Douglas-built counterpart, the DC-8, which are truly wonderful aeroplanes. Eventually, they will offer the fastest, most comfortable—perhaps even the cheapest—air travel ever known. The snag is that they are too big too soon, and the airports are not really ready for them.

They are huge aircraft, carrying anything up to 176 passengers and 19,400 gall. of fuel, and they require very long take-off runs. As a result, runways must in many cases be lengthened and strengthened before they can be operated at their maximum weight of 110-138 tons.

At New York International Airport one runway is being lengthened from 8,300 ft. to 11,200 ft. (more than two miles); but the work was not finished in time for the first jet services. B.O.A.C. and Pan American were told, consequently, that they could fly their Comets and Boeing 707s from the airport only if after take-off the pilots climbed to a height of at least 1,200 ft. and throttled back before passing over the airport boundary. This, it was felt, would reduce the noise from the aircrafts' engines to a reasonable level for people on the ground.

Such restrictions gave B.O.A.C. few headaches. The Comet was designed primarily for use on the Commonwealth routes, where runways are often short, and it was able to meet the New York climb requirements even with a full load of passengers and fuel.

Pan American were in a less enviable position, and the only way they could ensure a quick climb to 1,200 ft. when



D.H. Comet 3B, prototype for the Comet 4B, is shown landing at Farnborough. British European Airways photograph.

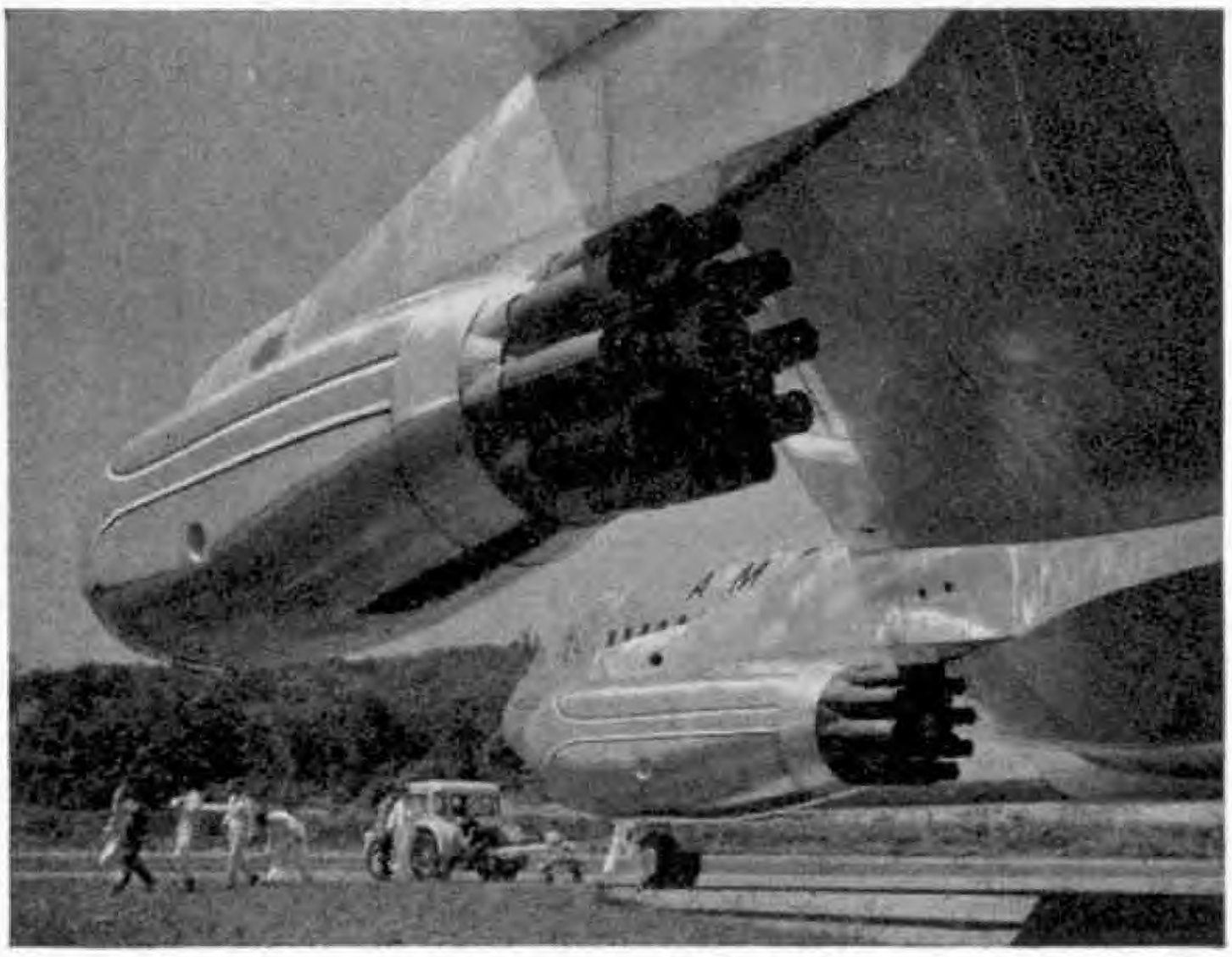
they flew their first 707 from New York to London was by cutting the weight of fuel and passengers by more than 25 tons. This kind of reduction not only prevents an airline from carrying sufficient payload to make a profit, but made it necessary for the 707 to land for refuelling en route, whereas the Comet was able to fly non-stop from west to east (but not east to west against head-winds).

Of course, the restrictions are only temporary. Runways will be lengthened in due course, and the 707 will then be able to fly with a full load without its noise upsetting anybody: but the present state of affairs underlines a fact which many people overlook—that apparently similar British and American aircraft are often designed to do an entirely different job.

This applies equally to military and civil aircraft. For example, some writers claim that because our Vulcan and Victor bombers weigh only half as much as their U.S. counterparts, they represent nothing like so great an achievement. Yet the R.A.F.'s V-bombers are smaller only because their bases are much nearer to potential enemy targets than are those of the U.S.A.F., so that they do not need to carry as much fuel. Their bomb load is as powerful as that of the bigger aircraft and, what is more, they carry it higher and faster.

Similarly, U.S. air liners like the Boeing 707 are built on a large scale primarily to carry enormous numbers of passengers on the long and busy coast-to-coast airways of North America and the trans-ocean routes which link the United States with other continents. The number of airports of sufficient importance to justify such traffic is comparatively small at present, so it was reasonable to expect that money would be found to lengthen their runways by the time the aircraft entered service. If the runways are not ready, it is the fault of the airlines rather than of the airport authorities or the aircraft designers.

This may seem an odd thing to say: but the cold hard truth is that neither the Comet 4 nor the Boeing 707-121s with which Pan American are operating their first transatlantic services were intended to be flown on this route. As we have seen, both can be, with stops for refuelling in one or both



A near view of the noise suppressors fitted to the engines of a Boeing 707-123 of American Airlines.

directions; but the first real transatlantic jets will be the larger, longer-range Boeing 707-320s and 420s which Pan American and B.O.A.C. will get later this year. Services have been started with the smaller aircraft partly to gain experience of transatlantic jet operation and partly for prestige.

People who compare the 707 with the Comet just because they are both used on these services are quite wrong. About the only feature the two types have in common is that each is a world-beater in its class. That is why B.O.A.C. have ordered both.

Airlines all over the world expect big things from their 707s, or they would not have paid £2 million each for them. Once the airports are ready B.O.A.C., for example, will be able to use their 707-420s to carry 131 first-class or 162 tourist passengers non-stop between London and New York, whatever the weather, at a cruising speed of up to 605 m.p.h.

Passengers will like the spacious comfort of the 707-420, with its four smooth, quiet 16,500 lb. thrust Rolls-Royce Conway turbojets; and if they are attracted in sufficient numbers to fill the huge cabin, the airline should make a handsome profit. But passengers will not be waiting in such vast numbers at all the stops on its Commonwealth services, and that is where the Comet comes in.

It provides an answer for any airline that wants a high-speed jet, smaller than the 707 and able to go almost anywhere. In its three forms—the long-range Comet 4, the medium-range clipped-wing Comet 4B ordered by B.E.A., and the intermediate Comet 4C—it can show a profit on all stages of from 400 to 3,000 miles in length, without any problems of runway length or noise. In fact, with its high rate of climb and engine noise-suppressors, it is quieter than many piston-engined air liners so far as people living outside the airport are concerned.

Nor, as is sometimes implied, is it an old-fashioned design. Compared with the Comet 1 of 1952, the Series 4 has more than twice the power and carries twice as many passengers twice as far. Normal accommodation is for up to 76 in the Comet 4 and 84-100 in the other versions. Each has four superb Rolls-Royce Avon RA.29 turbojets of 10,500 lb. thrust, giving a cruising speed of 510-532 m.p.h.

Almost the only feature which the new Comet has inherited from its predecessors is the experience of 30,000 hours of airline flying by the Series 1, over 17,000 hours by Comet 2s of R.A.F. Transport Command and 3,344 hours by the two Comet 2Es with which B.O.A.C. made 197 round trips between London and Beirut and 50 Atlantic crossings before starting their passenger services in October. No other air liner in history has been so thoroughly-proven when it entered service.

With the Comet and Boeing 707, therefore, the airlines are entering a new era of tremendous promise, and even-more-spectacular designs are on the drawing boards in Britain to follow them into service in the mid-60s. For medium-length routes there will be the 600 m.p.h., 100-passenger D.H.121; while the huge 52/151-seat Vickers VC.10 will be comparable in speed and size with the biggest jets of today and yet will fly from airfields that they would find too small.



Boeing 707 jet air liners in production at Boeing's Transport Division plant, Renton, Washington, U.S.A.

Road and Track

By Peter Lewis

WHETHER or not the new Formula I comes into operation in 1961, the fact remains that we still have two full seasons of G.P. racing under the present 2½ litre formula, two seasons during which British cars can win more laurels and British drivers may continue their domination of the motor-racing scene.

Enzo Ferrari, in spite of the fact that Mike Hawthorn won the World Championship for Drivers in one of his cars, did not win the Manufacturers' Championship. That went to Mr. Vandervell and Ferrari will be after it this season. It seems certain that the wily Italian is going to make a maximum bid to sweep the board in 1959 and because of this it is a fine tribute to this country that 26 year old Cliff Allison of Brough, Westmorland, has been signed on as a member of Scuderia Ferrari, to drive G.P. and sports cars.

Allison, who is married and has a daughter and two sons, started motor-racing—as so many others have done—with his own Formula 3 Cooper. That was at Charterhall in 1953, and he continued in this hard, testing school until 1955, when he joined Team Lotus.

His first race for Colin Chapman was not exactly a successful debut, for on the Oulton Park circuit, driving a Mark Nine Lotus, he missed a gear in the J.2 type M.G. gearbox and overturned at Old Hall Corner, only a few yards from where I was standing. Since that first race he has more than paid his way in Team Lotus, however, and in 1957 co-driving with Keith Hall, he won the all-important Index of Performance at Le Mans and the 750 c.c. class as well, a magnificent effort that shattered the French.

Last season, with absolutely no previous Formula I experience whatsoever, Allison drove for Colin Chapman in World Championship events. I saw him on several occasions and was most impressed with his calm, forceful handling of the brand new Lotus, particularly on such difficult circuits as Spa and the Nurburgring.

Ferrari is quick to spot new talent, and as a result of Allison's game showing in the series of 1958 championship events the Team Lotus driver was invited to Modena, Italy. For two days he was on trial, lapping the famous Autodrome at least seventy times, first with a 2-litre sports car, then with the latest 3-litre sports car and finally with Mike Hawthorn's Casablanca car.

Scuderia Ferrari were suitably impressed and signed him on. With the up and coming American driver, Phil Hill, to show him the ropes, I feel sure that Cliff Allison will fully justify his place in the Italian team.



Prototypes of the new Vauxhall Velox and Cresta models during their testing programme in the Alps. Photograph by courtesy of Vauxhall Motors Ltd.

The Vauxhall Cresta

I wonder how long it will be before the Vauxhall line becomes commonplace on British roads, for undoubtedly the Cresta that I collected from Luton a few weeks ago excited a lot of comment. It would have caused even more comment if I could



Cliff Allison, on the right, seen here receiving an award, has done splendid work with the Lotus team, in World Championship events, and has been signed on by the Scuderia Ferrari for the racing season of this year.

have demonstrated the handling qualities to all those who showed an interest, for the Cresta is a most pleasant motor car to drive and has no tendencies towards the "boulevard ride" that is common to so many wallowing American cars. It holds the road well—particularly in the wet—and its powerful 2,262 c.c. 6-cylinder engine gives effortless cruising at 75 to 80 m.p.h. This lack of fuss is of course one of the salient features of a 6-cylinder unit.

I found that I could get 35 in first, and 60 in second from the three-speed box, an unusual and welcome feature of which is synchromesh on every gear, and that top gear was a really powerful puller. On a long, straight stretch the speedometer showed 90 and my five passengers were quite relaxed.

I give top marks to the Cresta for easy starting. After a night out in the frost, a turn of the combined ignition key/starter was sufficient to do the trick. Such is progress. No choke to pull out and no frantic blipping of the accelerator required. Just a matter of settling down behind the wheel and fully depressing the accelerator pedal to the floor once; this sets the automatic choke and fast idler according to the prevailing temperature. The Vauxhall system eliminates all manual choking and automatically controls the air/fuel mixture in accordance with the requirements of the engine.

I must admit there is a lot to be said for easy motoring of this nature and the Cresta is a perfect example of what can be done. Everything is designed for ease of control and the excellent all-round vision and extremely comfortable seating are major contributions to road safety. Yet, American in looks though it is, the handling of the Cresta is comparable to many cars that are classified as sports machines. Vauxhall Motors are showing the shape of things to come.

The Bullnose Morris

More and more people are taking an interest in renovating old motor cars that would otherwise end their days on a scrap heap. Such a car is the Bullnose Morris, of which 168,000 were manufactured between 1912 and 1926, and the recently formed Bullnose Morris Club has located 300 of these cars still in use today. Reliable and cheap to run, most of them provide comfortable daily transport and spares are plentiful.

I was invited to attend the club's Autumn Rally at Woburn (Continued on page 52)



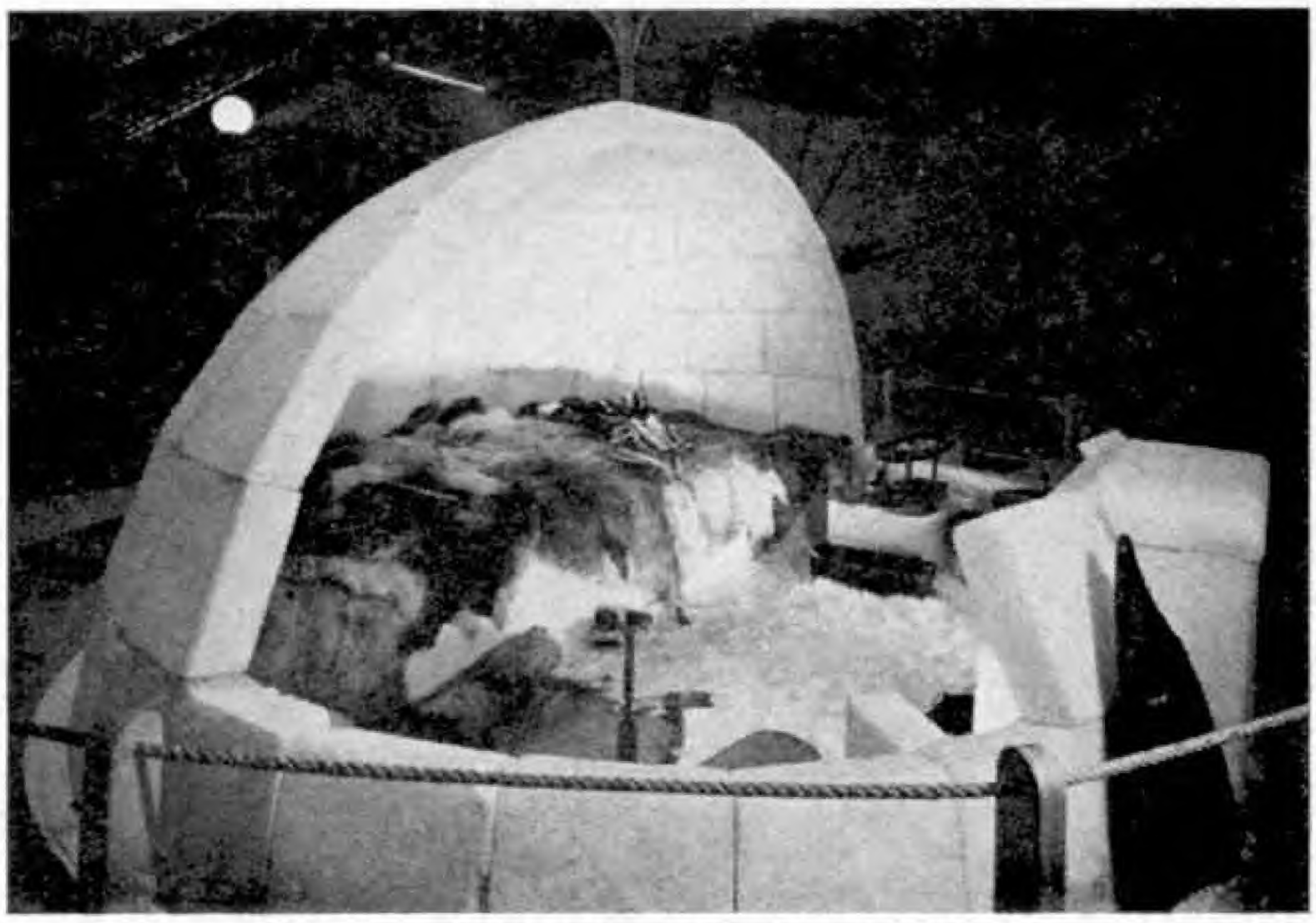
This saloon and the open touring car behind it were among the 100 or more vintage Bullnose Morris cars seen at a rally last autumn at Woburn Abbey.

Better than Snow!

Eskimo Igloos Built of Plastic

By Francis Dickie

EVER since the Canadian Eskimos met the white man they named Kabloona, they have been contemptuous of Kabloona's inferiority in coping with such Arctic demands as hunting, fishing and, particularly, building snowhouses. But now the white man has triumphed in producing a plastic igloo so superior in every way to the one of snow blocks that Eskimos have been building for 1,000 years that even the Eskimos have admitted the superiority of this invention.



An experimental igloo, or Eskimo hut, built of a special light-weight plastic. Unlike an Eskimo snow house, it does not eventually collapse and it is more comfortable.

The building of this new type structure to meet Arctic conditions better than the snow igloo is due to James A. Houston, a widely experienced officer of the Canadian Department of Northern Affairs who lived for years among the Eskimos. Thus he was very familiar with the drawbacks of the native snowhouse. Its interior temperature was uneven, the ceiling dripped, and the igloo melted away; and also it was slow to heat.

Houston heard of a new petroleum chemical product named Styrofoam, that is 30-times lighter than water. He studied the techniques of building Eskimo snowhouses as explained by the famous Arctic explorer, Vilhjalmur Stefansson, and from this he became convinced that a far better Arctic home than the original Eskimo snowhouse could be fabricated with the featherweight Styrofoam, which had already been used as insulation in ordinary houses in Greenland and northern Canada.



Pitsulak, a skilled Eskimo snow house builder, found the new plastic igloo easy to construct.

First he had a laboratory igloo built in Ottawa, Canada, paid for by the Department of Northern Affairs and Natural Resources. This was

constructed by Pitsulak, an Eskimo famous as a fast snow igloo builder who was brought south for the experiment. Then the light blocks of which the igloo was built were shipped on the yearly Canadian supply ship to Cape Dorset, Baffin Land, in the Eastern Arctic. There Pitsulak rebuilt it for the real Arctic testing. No better place for a thorough test could have been selected than this bleak, terribly wind-swept area of extreme low temperatures.

At Cape Dorset, Pitsulak applied nearly the same method as when building an Eskimo snow igloo. He laid out the foundation blocks on a circular floor of two layers of plywood with Styrofoam inlaid between these. Then, using a saw-knife, which has a wooden handle holding an 18 in. stainless steel blade, he shaped the blocks to meet the size of the Arctic house, layer upon layer.

Now in snow block construction each one is cut so expertly that the blocks fit to hold together by gravity, and the final closing block at top of dome serves to bind the whole structure together. Herein lies Eskimo skill. However, in building the new plastic blocks Pitsulak had to vary the old method slightly. The Styrofoam blocks, instead of being held by gravity, were secured by wooden meat skewers.



The plastic igloo is now in use in the Arctic as a school.

This first plastic igloo still stands on a barren exposed hill at Cape Dorset. It includes a rear tunnel entrance, as found in ordinary snow igloos, and is composed of 120 blocks of six inch thickness. These blocks, 18 inches wide and 36 inches long, after being cut to the shape required, were glued together by an adhesive named Styrolok, and the result of Pitsulak's labours is an igloo 18 feet in diameter and 9 feet high. Although it is so light that four men can easily pick it up and carry it, the roof will support a weight of 360 pounds.

Away in the Arctic this man-made igloo has withstood winds up to 85 miles per hour. Yet in spite of the fury of the wind no sound could be heard inside. It is windproof and dry, and a suitable temperature within it can be achieved quickly and maintained easily. In 40 degrees below zero, a small wick-burning kerosene stove brought the temperature from 30 degrees above to 105 in two hours far faster than the old Eskimo oil lamp, which maintained around 30 degrees. The igloo is also fireproof and resists the hottest sun. It costs 450 dollars to complete.

The hut now serves as a schoolhouse for the Eskimos of the Mission there, and also the few white children of the Government personnel. For the new generation of Eskimos, adapting more white man living standards, the new igloo is most suitable, either for permanent or movable domicile.

"ABC OF BRITISH RAILWAY COACHES"

By G. M. Kichenside

(Ian Allan)

At long last a booklet has appeared dealing with passenger coaches and their associated vehicles, which have been somewhat neglected in railway literature in the past. This new booklet, consisting of 65 pages of information and well illustrated, covers the complete range of passenger stock built since 1950 and includes steam-hauled, diesel and electric vehicles. Apart from being a valuable work of reference to those who study rolling stock, this booklet will also be of great use to the model-builder, containing as it does dimensions and general arrangement sketches of both the exterior and interior arrangements of the vehicles concerned.

Constructional features, number series and liveries are all dealt with, and a further useful feature is details of the British Railways vehicle classification code which explains the meanings of those mysterious letters to be seen on the ends of coaches.

Copies of the booklet can be obtained from leading booksellers and railway bookstalls, or direct from the publishers Ian Allan Ltd., Craven House, Hampton Court, Surrey, price 2/6 net.

Railway Notes

By R. A. H. Weight

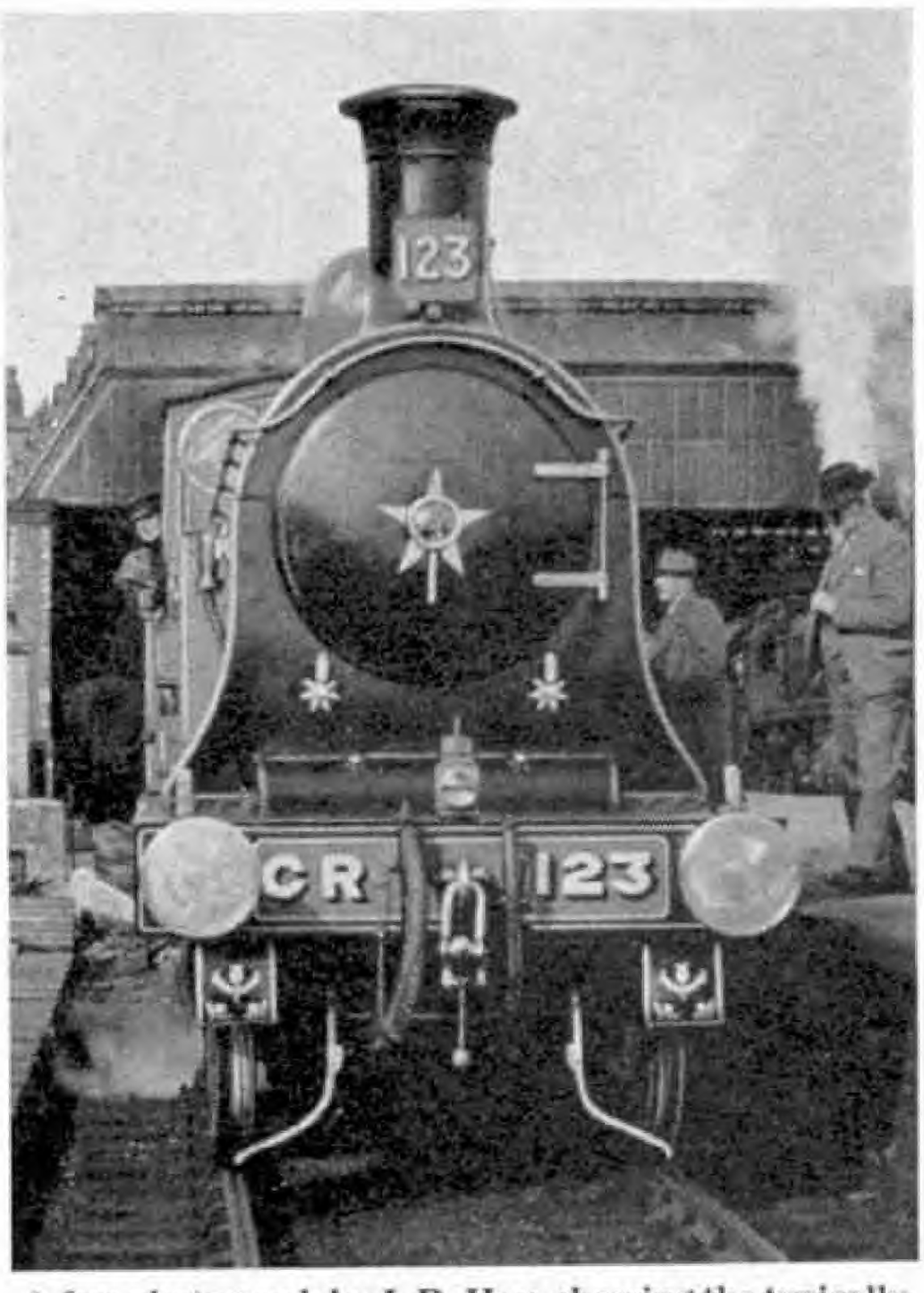
Aboard the Morning "Talisman"

Although an experienced long-distance rail traveller for many years, I felt a thrill of expectation one day last autumn at Darlington as this handsome Edinburgh–London express drew in preparatory to its 60 m.p.h. non-stop run on to King's Cross, headed by the world steam speed record-holding A4 locomotive, No. 60022, *Mallard*, looking in perfect condition. The well-filled 9-coach train weighed about 330 tons in all; there was a lot of track repair or similar engineering work going on within the first 120 miles, necessitating a number of slowings.

As customary, the start from Darlington was very fast along almost level track. Pilmoor, 28 miles, was passed in 24¾ min., with speeds up to 88-91 m.p.h., but before York there were two severe speed restrictions, during one of which we passed on the next line a mechanical track laying outfit. Bursts of speed up to 80 m.p.h. before Doncaster, then to 85 descending to the Trent Valley in Nottinghamshire, made the most of fast running opportunities when possible, but when recovering from the seventh extra slack just after Newark, we were 14 min. late with some climbing ahead past Grantham to Stoke Summit and unfortunately were slowed by signal about a mile from the tunnel and the top. From Stoke signal box we had 100 miles to go but only 86½ min. left if we were to reach King's Cross in time! And it was almost done!

Down the famous descent the maximum was 90 m.p.h. with 83 averaged for 16 miles. Gently we passed through Peterborough at 2.19, and then followed a splendid performance all the way to the London outskirts. Over an undulating course *Mallard* averaged 78½ m.p.h. between Huntingdon and Hatfield, with a maximum of 85 and an uphill minimum of 68 at Stevenage. By Potters Bar, where high speed has to end, 219½ miles had been covered from Darlington in 218¾ min., despite 18 min. delays! With signals clear, gliding through Finsbury Park, 2½ miles out, Driver Davis and his able fireman on a grand engine had practically won the day. Then adverse signals were sighted, causing a crawl outside the terminus between the tunnels. Nevertheless *The Talisman* was at rest in No. 2 platform just before 3.26 p.m., really only a matter of seconds late. We had virtually kept the mile-a-minute schedule without actually stopping from the historic town in Co. Durham, 232 miles away, including say 19 min. lost on account of the extra speed restrictions.

I recently heard of runs that were almost as fine by the up *Tees-Tyne Pullman*, having practically the same timing and train-weight, headed by a Pacific and a 2,000 h.p. diesel-electric locomotive respectively.



A fine photograph by J. R. Hay, showing the typically Scottish locomotive "face" of Caledonian No. 123, with traditional embellishments. This veteran 4-2-2 was returned to service last year for use on railway enthusiasts' and similar specials.

Motive Power News

New locomotives have lately been allocated as follows: steam 2–10–0 Nos. 92236–40, 86A Newport (Ebbw Junction) and Nos. 92198–9, 36A, Doncaster; diesel-electric A1A–A1A No. D5518, 30A, Stratford, Bo-Bo Nos. D5302–4, 34B, Hornsey, and Co-Bo No. D5702, 17A, Derby. The first two of these 1,200 h.p. diesels, numbered D5700–1, have been on trial express passenger and fast freight runs together from Derby and Cricklewood, Midland Division. Additional shunting type allocated are Nos. D3546–51, 61B, Aberdeen; D3578, 8A, Edge Hill, Liverpool; D3579–80, 24K, Preston; D3595, 83E, St. Blazey, Cornwall; D3596–7, 83G, Penzance; D3598, 83C, Exeter; D3625–30, 40E, Colwick, Nottingham; and D3631, 30A, Stratford; with diesel-mechanical shunting type Nos. D2412, 60A, Inverness and D2028–30, 31A, Cambridge, and diesel-hydraulic shunters Nos. D2729–32, 64A, St. Margarets, Edinburgh, and D2909–10, 2A, Rugby.

The first A.C. electric locomotive for training and overhead line testing purposes on part of the Manchester–Crewe route now being converted is No. E.1000, having the Co-Co wheel arrangement. It was formerly the Metropolitan-Vickers gas-turbine trial locomotive No. 18100.

The Royal B2 4-6-0 engine stationed at Cambridge, E.R., is now No. 61632 *Royal Sovereign* (previously named *Belvoir Castle*), replacing No. 61671 withdrawn. Britannia 4–6–2s have been noted working through on Liverpool Street–Yarmouth trains, and on cross-country ones through March to Sheffield and York. L1 2–6–4T and D5300 class engines haul G.N. line local trains to and from Broad Street terminus, London.

A splendidly equipped Motive Power Depot, code 51L, has been opened at Thornaby-on-Tees, close to the diverted Darlington–Middlesbrough line, replacing old sheds at Middlesbrough and Newport (Yorks.). S.R. amended depot code numbers in Kent are Ashford 73F, Ramsgate 73G, Dover 73H and Tonbridge 73J.

Down to York and along the N.E.R.

Aboard the *Northumbrian* I recently travelled part of its journey so quietly in an ex-L.N.E.R. triplet restaurant aud kitchen car set provided with buffet-bar, that it was difficult to realise that speeds were as high as 84 m.p.h. One of the original Gresley Pacifics, No. 60111 *Enterprise*, now A3 class, was at its head. With "12-on", or 430 tons, leaving King's Cross at 12.20 p.m., the train completed its non-stop run to Grantham in 114 min. as booked, although slowed for track renewal work before Hatfield and by signals at Fletton Junction, 1½ miles south of Peterborough.

North thereof, roaring away up the long rise to Stoke summit, minimum speeds were 50 and 54 m.p.h., though higher than that over the last mile to the top. At Grantham appropriately, for the ride to York and forward to Newcastle, another veteran 4–6–2, No. 60080 *Dick Turpin* took charge. Some time was lost owing to engineering slacks, and at York, the next stop, and no recovery was managed, so on this occasion when arriving at Darlington, where I alighted, the train was late.

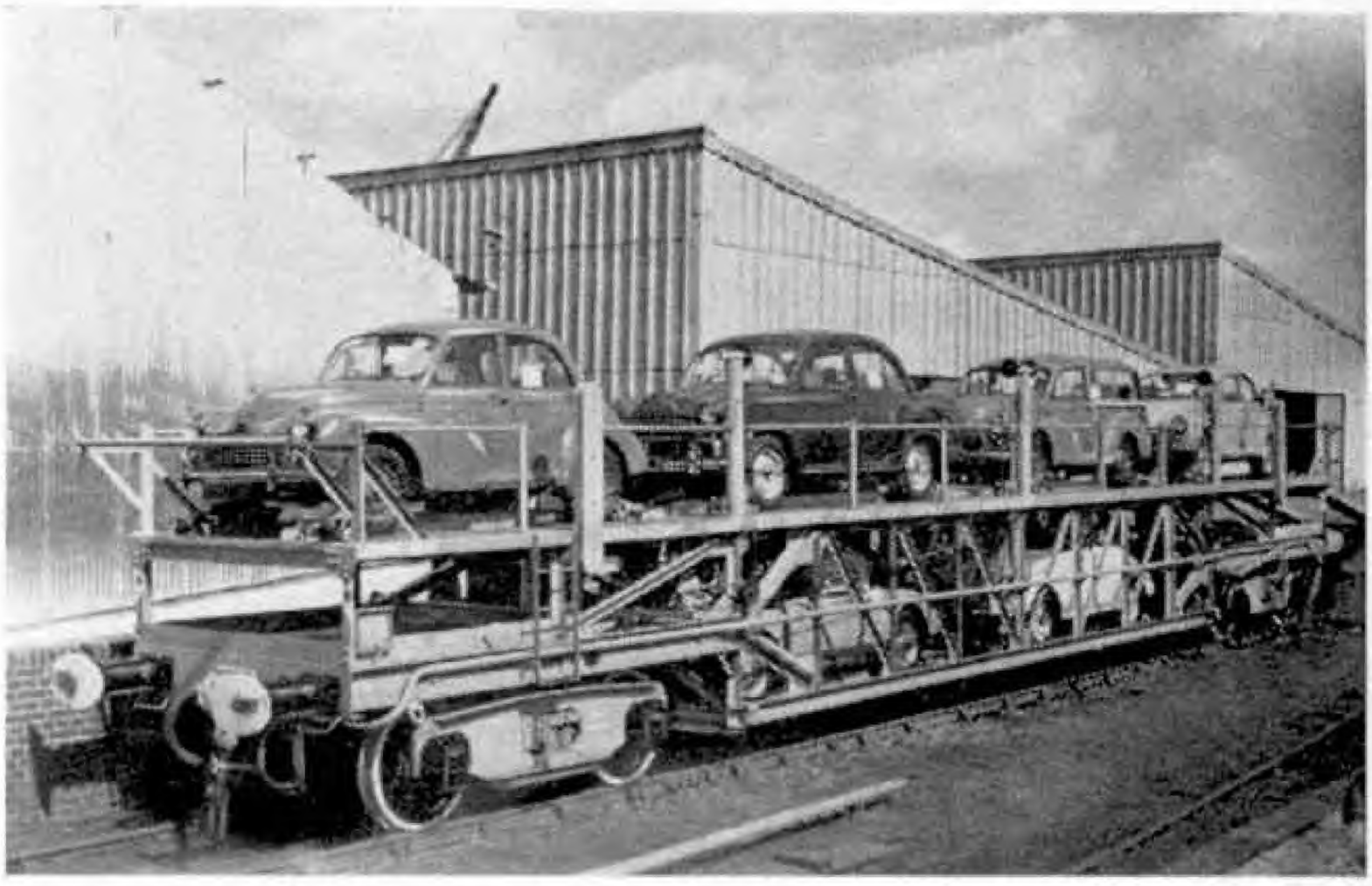
The next train on the down main platform line at that station was a local freight hauled by one of the ex-Ministry of Supply 0–6–0 saddle tanks, No. 68067. It was followed by the *Heart of Midlothian* London–Edinburgh express in charge of A4 No. 60018 *Sparrow Hawk*, which made a short stop and left on time.

Expresses and goods or other trains not calling at Darlington pass outside the station on the east side. Diesel passenger trains come and go. My journey in the quickest of the many fast trains thence to York behind the latest big diesel-electric No. D209 will be reported in a later issue.

During two short spells of observation at different times of day at York, where there is often so much of locomotive and operating interest to be seen, I saw engines of classes A1–4, V2, B16, K1–3, D49, J39, J27, W.D. and O1 2–8–0, etc., also ex-L.M.S. types including class 4 2–6–4T, class 5 4–6–0 No. 44828 going through to Scarborough, No. 45154, *Lanarkshire Yeomanry*, from Manchester, and a Patriot 4–6–0. The afternoon *Talisman*, northbound non-stop from King's Cross to Newcastle, went through the centre with chime whistle sounding. It was headed by the gleaming A4 *Falcon*, the train and dining cars with their bright lights looking very attractive.

London Freight Transport Exhibition

Last autumn a well organised exhibition at Battersea Wharf Goods Depot, close to the River Thames and the lines out of Victoria, displayed much of the latest equipment used for the freight services of British Railways and British Road Services. It was open to the public for several days. "There is nothing made, manufactured or mined, capable of being moved that cannot be carried by these combined freight services", we were told. With over a million railway wagons, tank vehicles, refrigerated and other vans designed to transport on rails, among much else—liquid, solid or powdered—loads of from less than a hundredweight up to, say, a 135-ton transformer, the accent as regards much of the goods handling is on door-to-door conveyance.



Rail transport for motor cars is provided by this special two-tier transporter built by Newton Chambers Ltd., for M.A.T. Transport Ltd. The vehicle is built to appropriate standards for through running between Great Britain and the Continent via train ferry and is suitable for speeds up to 70 m.p.h. A two-deck hoist is provided for loading and unloading the cars shown in the well of the vehicle. Photograph by courtesy of The Nuffield Organisation.

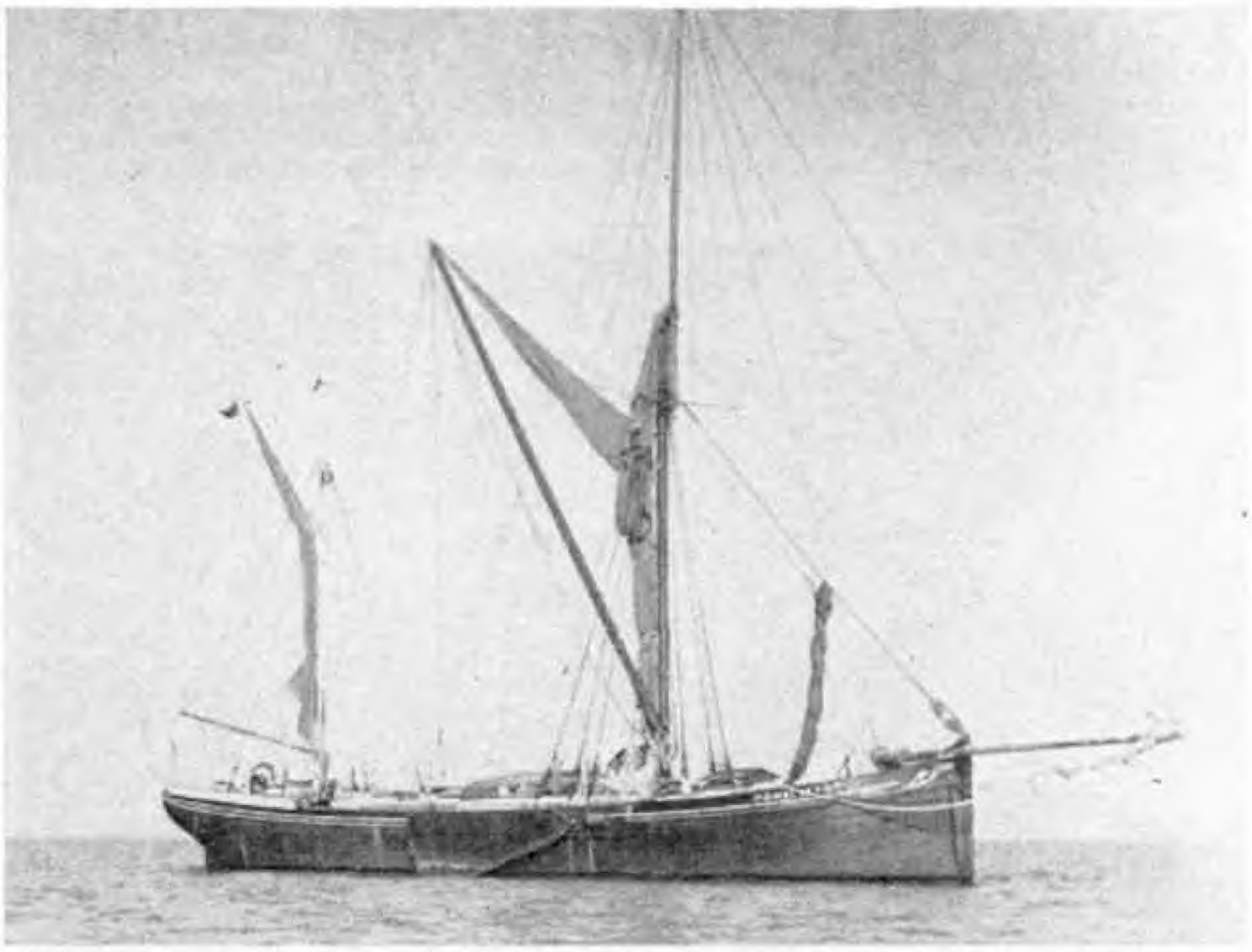
Fascinating demonstrations were given during my visit with many types of containers, some quite new, that travel with their loads securely on road and rail vehicles, being transferred from one to the other with remarkable celerity by mobile road cranes and fork lift trucks. There was also a "Freightlifter" combined mobile outfit, with alternative driving positions, able to handle loads up to 8 tons vertically or horizontally. It can remove articles weighing up to a ton from the corners of covered wagons. I watched the steady lifting of two tiers of motor cars as depicted in an accompanying illustration.



Double-chimney A4 Pacific No. 60020 "Guillemot", in full flight with "The Talisman", a fine action photograph by C. Ord.

New Marshalling Yard in S. Wales

In connection with the huge steelworks in the neighbourhood, and to deal with increasing freight traffic around Port Talbot and Llanelly, construction is proceeding of a large marshalling yard to have mechanical sorting and electrical control of wagons, at Margam, Glam. The provision of new tracks, bridges, motive power depot, and large scale earthworks is included in the scheme, which will speed up goods train operation over a wide area.



"Wolsey" is a privately owned Thames barge. The illustrations to this article are from photographs by the author.

Sailing Ships that Survive

Small Craft that still sail around our Coasts

By John Mannering

ALTHOUGH most of the great proud sailing ships have gone from the oceans of the world, there are still many interesting craft going about our coasts under sail. They include vessels from a particular locality or those built for special purposes, and their different characteristics make them an interesting study.

Those illustrated on these pages have all passed through the Strait of Dover recently, and represent very well the various purposes for which small coastal ships were built.

First of all we have the Thames barge *Wolsey*. Very few of these barges remain under sail; most of them now have engines, and their masts and sails have been removed. *Wolsey* is privately owned and still voyages about the English Channel in the summer months.

The Thames barges were developed as the most suitable craft for carrying a fairly large cargo, up to 150 or 180 tons, on a very shallow draught, with a minimum of labour. Their work lay mostly in carrying cargoes from the steamers in the London docks to various ports in the Thames estuary and on the south and east coasts of England. The normal crew was a captain and one man, although some of the larger barges trading to the continental ports carried a third hand.

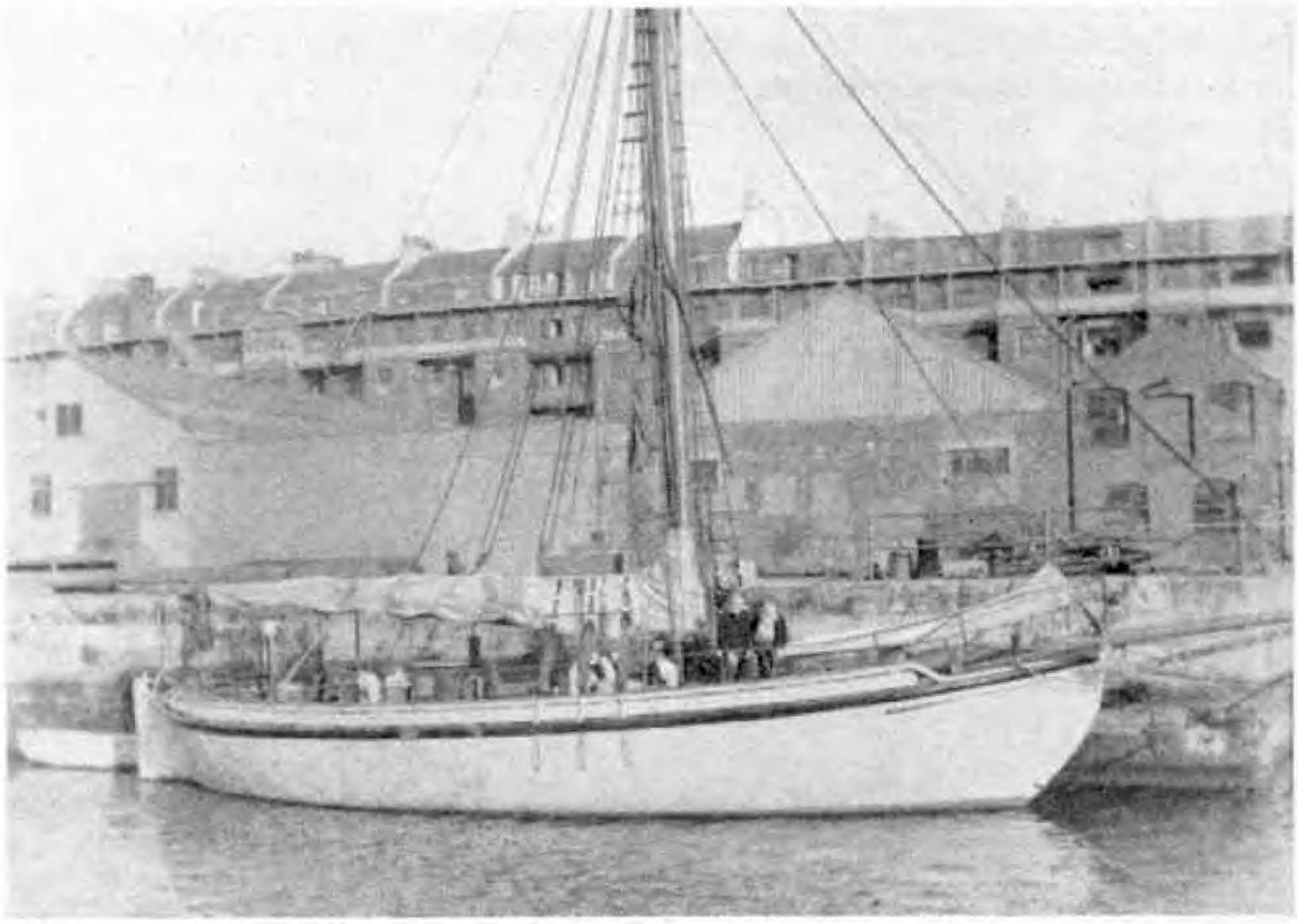
Note the lee-boards, which are lowered when sailing to prevent the barge "making leeway," that is being thrust sideways through the water by the force of the wind. On account of their light draught and flat bottoms, which made them ideal for the



"Mary Ann of Galway", almost the last of her kind.

rivers and creeks of the estuary, they need these lee-boards in place of a keel.

A feature that made them easy to handle with a small crew was that their mainsail, mizzen, and topsail, all very heavy sails, had not to be hoisted right up when sail was set. They were stowed, as shown in the photograph, by a system of brails and tackles, more or less in position, so that they only had to be loosened to be ready for sailing, or in the case of the topsail, hoisted on its own topmast.



"Risor" is a Norwegian life-boat, of a class developed by Colin Archer, the designer of "Fram", the vessel in which Nansen made his most famous Arctic voyage.

The *Wolsey* is known as a "mule-rigged" barge, as she has a larger mizzen than the ordinary river staysail barge.

The Galway hooker, *Mary Ann of Galway*, seen in our second picture, is almost the last of her kind. She is one of the ships that were much used off the west Irish coast, up to about 30 years ago, for carrying small cargoes, mostly agricultural produce, from the villages along the coast to the larger centres of population. They also carried live cattle, stone for building, peat for the fires, or practically anything that required moving. They were in fact equivalent to the modern lorry; for in those days transport by water was very much easier than by land, often over indifferent roads and on such an indented and mountainous coast.



"Sol-Lys", a small Danish vessel, with her dinghy carried over her stern.

Risor is among the few survivors of some of the most powerful small sailing ships ever built. She is of a class developed and perfected by Colin Archer, who also designed Nansen's *Fram*, which was used for voyages of exploration in the Arctic. This vessel indeed was jammed in the Arctic ice to drift with it over a very long distance and survived this severe ordeal.

Risor was one of the Norwegian life-boats that were used specifically for tending the off-shore fishing fleets sailing from the Norwegian fiords. Each fleet had its own life-boat that kept station among the fishing vessels of which it was composed, giving assistance where required, keeping medical and other stores on board, and generally looking after the welfare of the fishermen.

The life-boats had to be immensely strong and seaworthy to withstand the violent gales that beat upon the Norwegian coast. Colin Archer

perfected their design, and *Risor*, with her powerful bow, great beam and freeboard, is a splendid example of his work. Another Norwegian life-boat, *Stavanger*, is at present, in spite of her sixty years, on a year's voyage to the Mediterranean and the West Indies. She is similar to *Risor*, except that she retains the original ketch rig, that is with two masts, whereas *Risor* has been converted to a cutter, that is a small sailing vessel with only one mast, carrying a mainsail and two headsails.



"Bird of Dawning", one of a type of sailing boat once often seen in the estuaries of Essex and Kent.

Risor is built almost entirely of oak, and "trennels" or wooden nails were used throughout in her construction.

Sol-Lys is a small Danish cutter designed and built by a Danish naval architect, exactly on the lines of the small trading vessels, or "Jagts," that served the Danish islands a hundred years ago. Larger vessels on similar lines traded as far as Iceland, Spain and even North Africa.

The small cutters of which *Sol-Lys* is a faithful reproduction carried cargoes of apples and other farm produce to Copenhagen from the off-lying islands round the Danish mainland. They had therefore to be fairly fast, dry and, like the Thames barge, easily handled. *Sol-Lys* has deep bulwarks, a bold sheer, that is to say her bow and stern are lifted well out of the water, while her cutter rig was the fastest then known.

Note the dinghy carried over the stern; this is typical Scandinavian practice.

Bird of Dawning is a small smack type of sailing boat, once very numerous in the estuaries of Kent and Essex, and used for fishing and oyster dredging. She was designed and built by Frank Shuttlewood, whose father and grandfather were builders of fishing boats and barges in the little riverside village of Paglesham near Southend.

The characteristics of these boats are a good spread of canvas, for they mostly fished in semi-sheltered waters, and a rather low stern, which facilitated the handling of the trawl and fishing gear.

Although built for private ownership and not for fishing, *Bird of Dawning* is a faithful model of the smacks which were once so plentiful in our east coast estuaries. As proof of the soundness of her design, she has sailed many times to Holland and the Normandy coast.

"The Observer's Book of Railway Locomotives of Britain"

Revised and Edited by H. C. CASSERLEY

(Frederick Warne & Co. Ltd.)

The attractive "Observer's Books" are now well known and deservedly popular and among the latest to appear is *The Observer's Book of Railway Locomotives of Great Britain*. This is the second edition of this useful book revised and brought up to date. It contains 286 pages with eight colour plates and more than 200 photographic reproductions of a representative selection of locomotive types from each Region of British Railways. Beneath the photographs such information as number series, leading dimensions and brief historical information is given.

The illustrations are mostly well produced and range from official views to those of engines in service. There is a section dealing with the constitution of the late four main line companies and lists of past Locomotive Superintendents and Chief Mechanical Engineers. The standard Headlamp Code and also the Locomotive Shed Code is included, and a brief reference to British Railways liveries. Finally there is an alphabetical list of named locomotives that will be found useful for reference.

The book is up to the usual high standard associated with the series and will be found useful to all those interested in the locomotives of British Railways. Copies can be obtained from leading booksellers, price 5/- net.

From Our Readers

This page is reserved for articles from our readers. Contributions not exceeding 500 words in length are invited on any subject of which the writer has special knowledge or experience. These should be written neatly on one side of the paper only, and should be accompanied if possible by original photographs for use as illustrations. Articles published will be paid for. Statements in articles submitted are accepted as being sent in good faith, but the Editor takes no responsibility for their accuracy.

Dogmatic

The "learned" dog seen in the accompanying picture is doing himself justice at Southend in an open court! He is one of several uncanny canines there whose activities delight the crowds, chiefly of children, for he is in a section of the public gardens, near the pier, that is set aside for them and is known as Never Never Land.

The dog's ancestry can be traced back to the pages of Kenneth Grahame's book *The Wind in the Willows*. The judge and the members of the court over whom he presides make amusing gestures of their heads and arms while the court is in session—but they are animated by electricity. His Lordship is known as the "Wooden Judge," though it has been asserted that he should have been made of bark. He is said to be engaged in hearing a case involving pedigree.

R. D. Barrett-Lennard
(London S.W.10)



A learned judge in a canine court that is in Southend, near the famous pier. Photograph by R. D. Barrett-Lennard, London S.W.10.

Old Warehouses at Sydney

The accompanying photograph is one of warehouses facing the waterfront at Circular Quay, Sydney, and is reminiscent of the days when windjammers plied between England and the distant penal colony of Sydney in the 18th and early 19th centuries. This row of rather decrepit buildings is charming by virtue of its singularity in the rapidly changing skyline of the city of Sydney.

Beside the near end of the warehouses are two newly erected office blocks, one of which is the eleven storey, fully air-conditioned I.C.I. building. At the far end is the recently completed Circular Quay overhead railway. How different the cars in the photograph are from the varied assortment of horses and carts that would be seen in the heyday of these warehouses!

The marked dissimilarity between these humble heralds of a bygone era and early developmental projects is symbolical of Sydney's progress since the period when it was merely a struggling colony.

R. Dyer (Sydney, Australia)



An old-world range of warehouses that can still be seen on the waterfront at Circular Quay, Sydney, Australia. Photograph by R. Dyer, Sydney.

Air News

By

John W. R. Taylor



Pan American Airways' first Boeing 707 jet air liner coming in to land at Miami's International Airport, Florida. (See special article on the Boeing 707 and Comet 4 on pages 7-9).

Rock 'n Roll at 40,000 feet

Aircrews testing Convair's B-58 Hustler supersonic bomber have been indulging in rock 'n roll sessions more than seven miles above the ground, but not for fun! Their kind of rocking and rolling is intended to ensure that the aircraft does not develop flutter when flown under combat conditions, and it may save the lives of many airmen.

Flutter is a thing aeroplanes are better without. When a gust of wind suddenly strikes the vertical fin, for example, the result is to start the fin swinging back and forth. This is not dangerous, so long as the fin—or any other part of the structure affected by the gust—returns to rest fairly quickly. If it does not, the result is flutter. The fin may take too long to return to normal. Worse still, it may start swinging wider and wider until it throws the aeroplane out of control.

Since it is not practicable to wait for wind to create the conditions for the tests, Convair technicians designed a set of special devices which literally give the Hustler the "shakes". They consist of hydraulically-powered weights, which shift to and fro at a rate controlled by one of the aircrew. The shifting of the weights produces just the same effects as a sudden gust of wind, and makes life very uncomfortable for a time. The shaking can, however, be stopped at any moment by any of the three crewmen, by simply pushing a button, if it becomes too violent.

SAS-Swissair Co-operation

Something new in airline co-operation was announced last October by SAS and Swissair, who have agreed virtually to pool the new jet-liners which they have on order, to improve efficiency and reduce costs.

Swissair has ordered five Convair 880 medium/long-range jets for delivery late in 1960; while SAS has increased from 12 to 16 its order for medium-range Sud-Aviation Caravelles. Of its five Convairs, Swissair will lease two to SAS for four years, and SAS will lease four Caravelles to Swissair from the summer of 1960 for a similar period The Caravelles will be operated by both companies in Europe and to the Middle East, and the Convairs to South America and the Far East. Convairs will also be used by SAS to South Africa and by Swissair to the Middle East.

At the same time, SAS will take over the overhaul of the Caravelles and all ten of the Douglas DC-8 long-range jet-liners ordered by the two companies; while Swissair will overhaul the Convair 880s.

The agreement means that the two operators will, from 1960, have available a highly-competitive jet fleet of 31 aircraft, which they will be able to interchange to suit changing circumstances.

Parachutist Falls 65 miles

When he stepped out of his harness last September after his 400th parachute jump, Warrant Officer Doug Hollands had dropped an estimated 65 miles—but not all at once! He became chief instructor at the R.A.A.F.'s Paratroop Training Wing at Williamtown more than four years ago, since when he has jumped hundreds of times with his pupils, averaging between 750 and 1,000 ft. in each fall.

At Williamtown, the Australian Army's Airborne Platoon members receive their initial instruction and do their first jumps. More than 18,500 descents have been made there since 1949, without any mishap brought about by faulty parachute equipment. The 'chutes are packed by 14 safety equipment workers, four of them girls, who often jump with the Army beginners just to show their confidence in their own handiwork.

America May Build Space Laboratory

According to Mr. Eugene Root, vice-president of the Lockheed company's Missile Systems Division, the next major space research laboratory built by the U.S. Government will almost certainly be located in a satellite orbit.

He explained that laboratories on the ground cannot be used to study many problems connected with space structures which, being above the atmosphere, are not affected by "drag" and carry virtually no weight. The types of light thin structures used for space stations and space-ships might not even be able to support their own weight on the ground, and the only way of assembling and testing them would be to do the work in an orbital laboratory.

Mr. Root emphasised that although the rockets used so far for space research were usually modified military missiles, future rocket weapons and space vehicles will be developed along divergent lines. As an example, no communications systems on Earth are expected to work over distances greater than about 5,000 miles, whereas a radio or radar circuit to even a Moon vehicle must be able to reach 50 times further.

* * * *

Good news for North American is that their little Sabreliner jet trainer-transport, described in the October 1958 *M.M.*, has been ordered into production for the U.S.A.F. as the T-39.

Teeth for the Sea Vixen

In the new de Havilland Sea Vixen the Royal Navy has one of the most formidable two-seat all-weather fighters in the world. The full extent of its armament has now been revealed, with the news that it carries 28 two-inch unguided air-to-air rockets in neat retractable containers in the underside of its fuselage. Shown in the lowered position in the upper illustration on this page, the containers snap back immediately the rockets have been fired and so have little effect on the aircraft's performance.



D.H. Sea Vixen, showing retractable rocket pods under the fuselage. A de Havilland photograph.

No guns are fitted to the Sea Vixen, which carries the rest of its armament under the wings. The aircraft illustrated has four packs, each containing a further 24 rockets behind streamlined fibreglass nose-cones. These can be replaced by four Firestreak air-to-air guided missiles or a total of 24 three-inch ground attack rockets.

The Friendship in Service

This promises to be an exciting year for those of you who are keen aircraft spotters, because 1959 will see the new generation of jet and turboprop air liners entering service on a large scale. Already Comets and Boeing 707s are a familiar sight at London Airport. Soon they will be followed by the turboprop Lockheed Electras ordered by K.L.M., the Sud-Aviation Caravelle jet-liners of Air France and SAS, and Fokker Friendships in the insignia of Aer Lingus.

Prototypes of the big turboprop Vickers Vanguard, the twin-boomed Armstrong Whitworth Argosy passenger-freighter and even the 600 m.p.h. Douglas DC-8 may also put in a first appearance at our larger airports during their test and development flying.

On the other side of the Atlantic, spotters will see far more of the Friendship than we shall, for it has been ordered by no fewer than nine U.S. and Canadian local service operators, as a replacement for their veteran DC-3 Dakotas. Like our own Handley Page Herald, the Friendship owes its fine performance to the two Rolls-Royce Dart turboprops with which it is powered, and the success of engines of this type in the 135 Viscounts ordered by U.S. and Canadian airlines played a big part in "selling" the smaller Friendship.

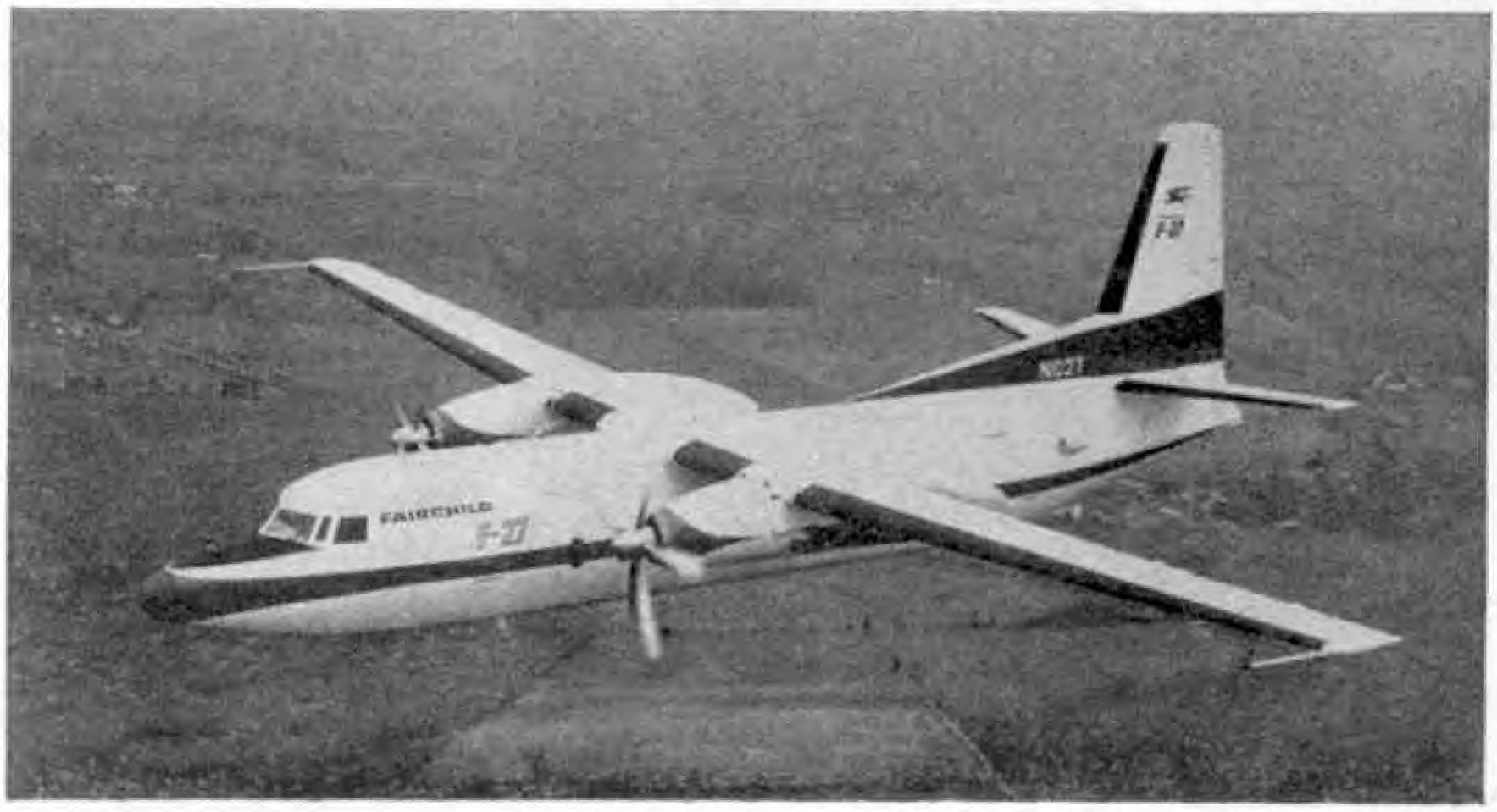
To cope with orders in North and South America, it is being produced in the United States by the Fairchild company, under licence from Fokker, and they are wasting no time. The first Fairchild-built machine flew on 12th April, 1958, less than a month after the first production model from the parent company, and deliveries to West Coast Airlines began on 22nd June. Early models have two 1,720 h.p. Dart 511s, giving a range of 680 miles at 280 m.p.h. with 40 passengers; but the 1,990 h.p. Dart 528 will be available later as an alternative engine, giving even better performance. The result will be a first-class "junior Viscount", with the added advantage of a high wing, giving passengers an unobstructed view below.

* * * *

Businessmen in Washington, the U.S. capital, are getting home quicker each evening thanks to a unique helicopter service operated by a local radio station. Rush-hour traffic reports transmitted from the circling helicopter are broadcast as a normal radio programme, enabling motorists to avoid the worst jams and hold-ups.

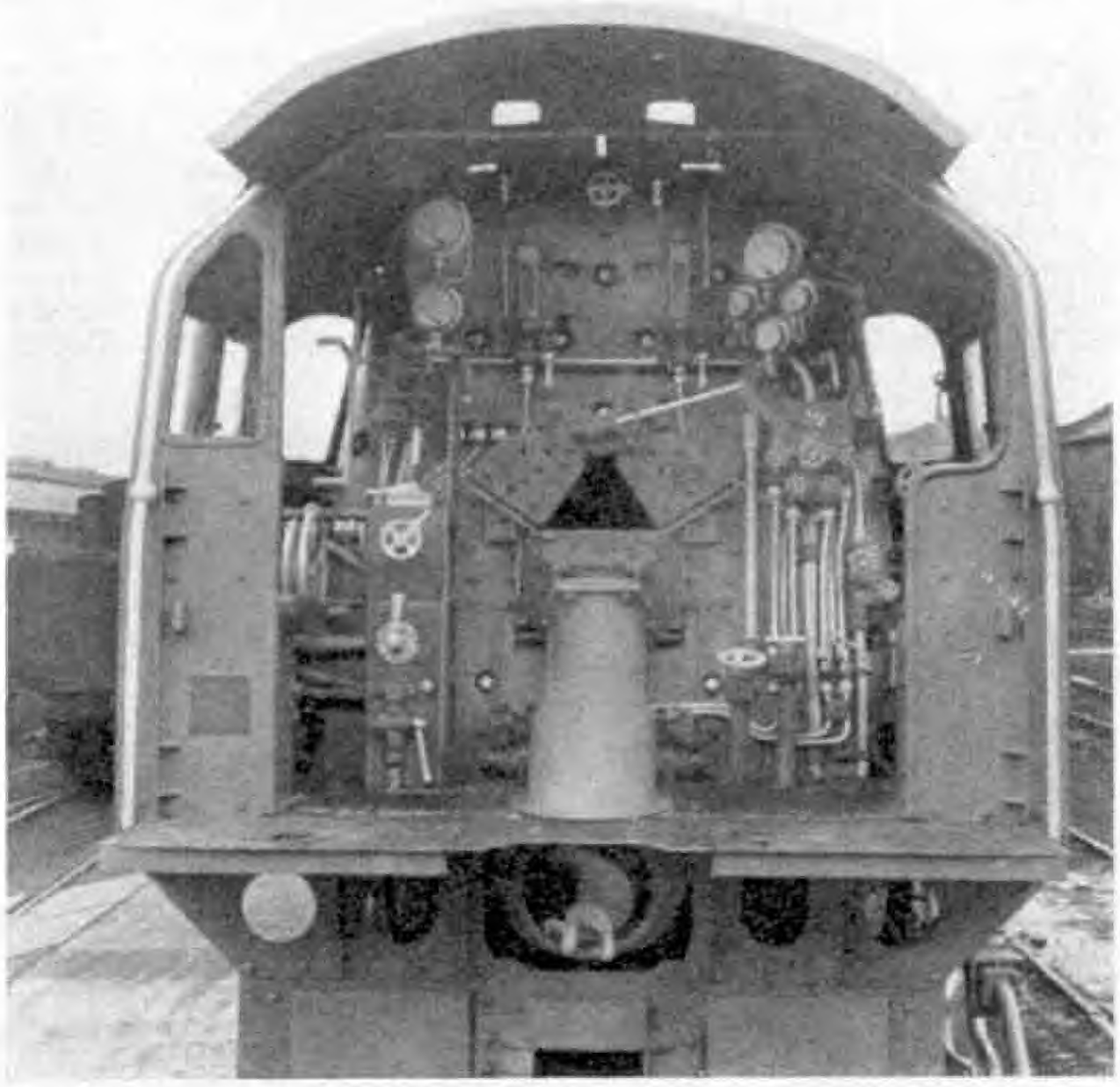
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Saunders-Roe are to build in England the Hiller XROE-1 "flying motor-cycle". Powered by a 43 h.p. Nelson engine, this little single-seat helicopter folds up for transport by air or lorry, and can be assembled quickly by one man.



The Fokker Friendship in production in the United States by the Fairchild company, under licence from Fokker.

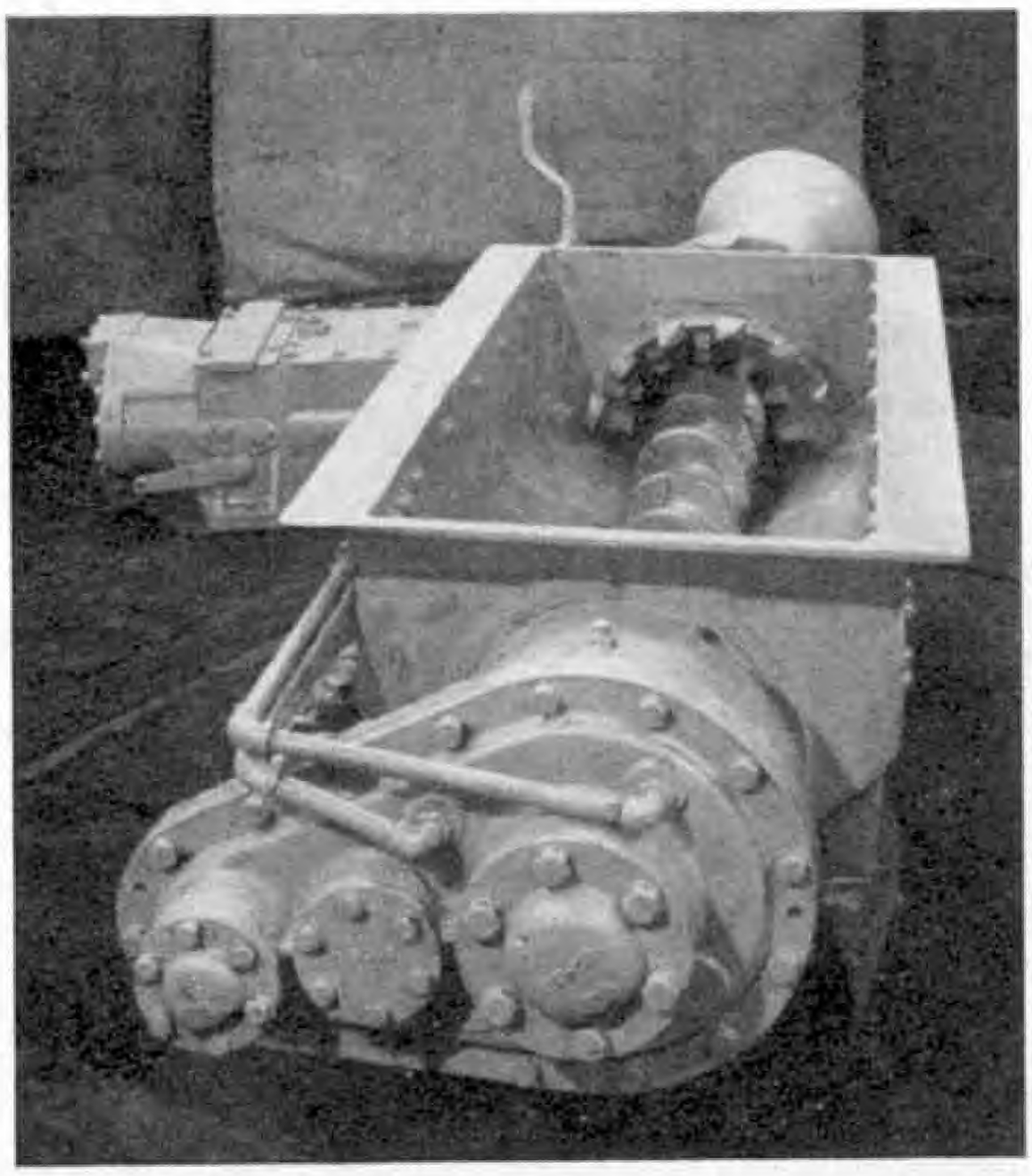
Iron Firemen for B.R. 2-10-0 Locomotives



This footplate view of B.R. 2-10-0 shows the conduit up which coal rises to the fire-box, and underneath is the screw that pushes the coal forward. This is connected with another screw leading from the tender. B.R. Official photographs.

MECHANICAL stokers have now been fitted on three B.R. Standard Class 9 2–10–0 locomotives, Nos. 92165–92167, and further 2–10–0 locomotives may be provided with them if the trials now being carried out with the three engines concerned are successful. The use of the stoker may allow trains of 53 loaded mineral wagons to be run behind these engines instead of the maximum of 37 now allowed with hand firing.

What *is* a mechanical stoker—the "iron fireman" of older U.S.A. railroad men? It is in effect a steam-operated conveyor that feeds the coal forward from the tender into the fire-box, where steam jets suitably placed direct it to those parts of the grate where it is needed. The type of stoker selected by B.R., supplied by Berkley Stoker Co. Ltd., is not automatic, but is controlled by the fireman. So he still "fires", but not with a shovel, and he can do it sitting down!

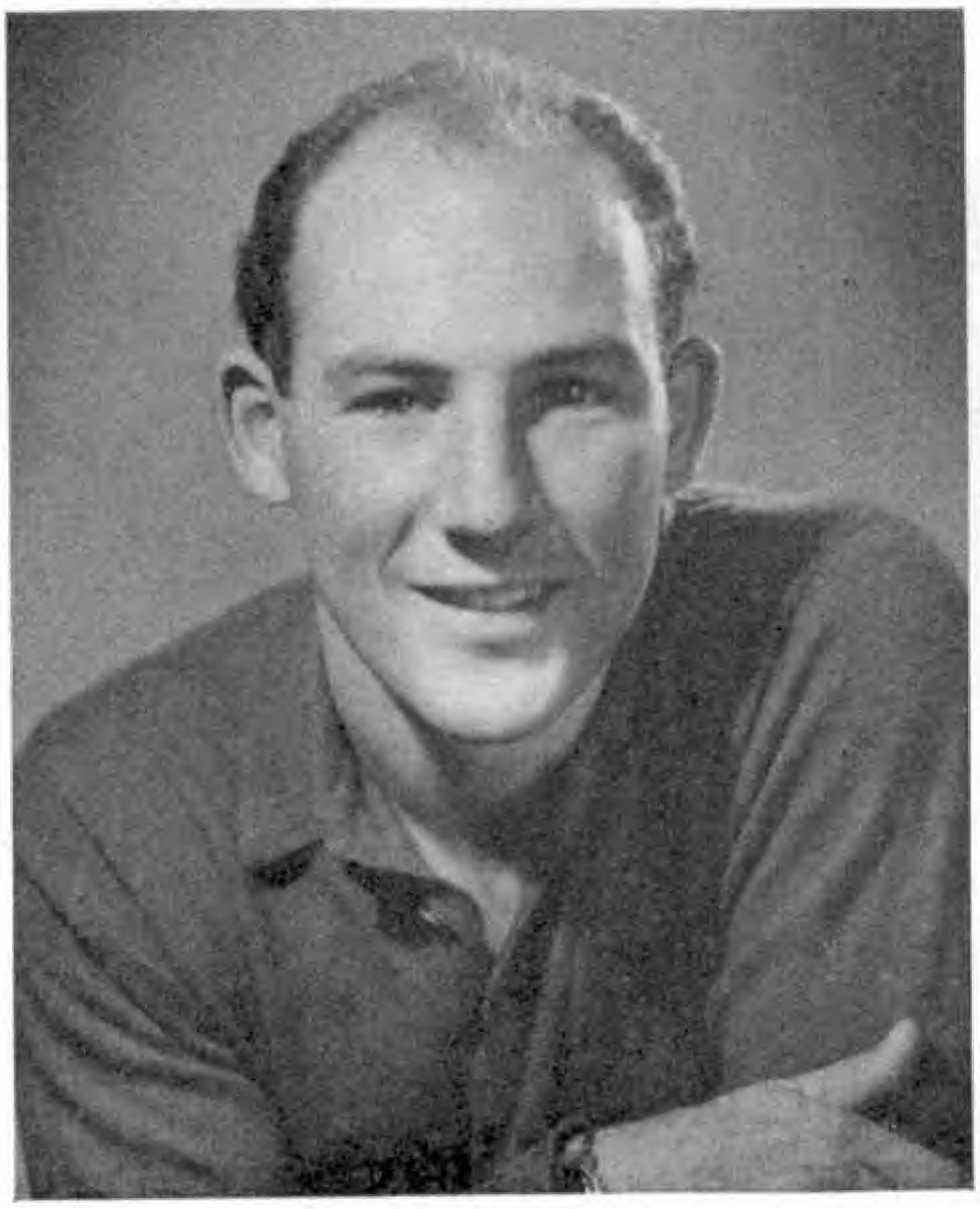


The tender conveyor unit, showing the open trough, the conveyor screw, the crusher and the gear box. The steam engine that drives the conveyor screw is in the left background.

In this stoker an auxiliary steam engine drives a conveyor screw fitted in a trough in the bottom of the coal bunker, into which the coal naturally finds its way. The trough is mounted on rollers, to allow for the movement between the engine and the tender. The screw is something like that in a domestic mincer, and as it revolves it moves the coal forward through a crusher, which breaks it into pieces of uniform size, and on to an intermediate conduit or tube connecting engine and tender. This leads to another section, known as the riser conduit, in which a separate screw carries the coal to the fire-box.

The stoker does not just shoot the coal into the fire-box. If it did the coal would all fall in the same place. Instead it falls on a distributor plate, from which it is spread out by steam jets to ensure efficient distribution over the grate. There are four control valves for the jets and it is these that give the fireman control of his fire.

MECCANO MAGAZINE



Junior Section

I NEED not tell you who is portrayed in the picture above. It is our old friend Stirling Moss, a Magazine enthusiast who is greatly interested also in Dinky Toys. He is indeed the holder of Dinky Toys Collectors' Licence No. 1.

Shortly before writing this I had heard that Stirling had won the Melbourne Grand Prix in a Cooper, another Cooper driven by the Australian racing motorist Jack Brabham being second. It did not seem very long since I had been talking to Stirling in Great Britain, and in the brief interval he had flown to Australia, won the Grand Prix there and immediately departed by air for America, where he is taking part in other races in which it is to be hoped he will meet with equal success. A racing motorist certainly finds his way around the world.

By contrast I have a veteran for you in the lower picture on this page, a locomotive built almost 100 years ago and still working. The boy standing alongside of it is A. D. B. Old, of Standish, near Wigan. He sent me the picture and told me that the name of the locomotive is *Wantage*.

The photograph was taken at John Pit, near Wigan, where the Wigan district locomotives of the National Coal Board are kept. *Wantage* is not the only veteran there. Its companions are also 0–6–0 Tanks with the names *John*, *Lindsay* and *Hector*, and I believe that *Hector*, like *Wantage*, was built in 1861. They now have two diesel-electric locomotives as companions, and in the end the steam engines will go to the scrap yard.



An 0-6-0 tank locomotive almost 100 years and still going strong.

Spanner's Special Section for Juniors

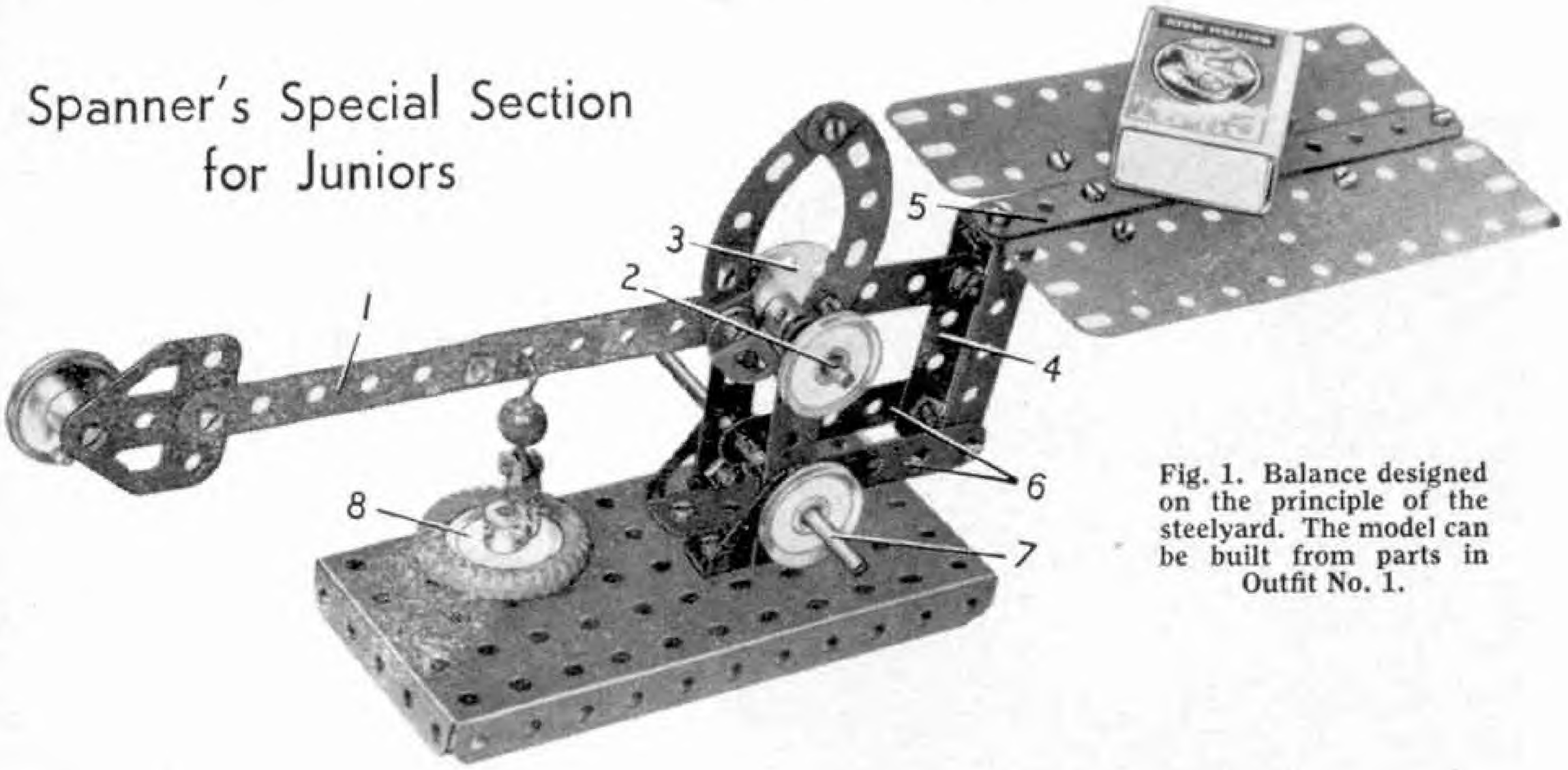


Fig. 1. Balance designed on the principle of the steelyard. The model can be built from parts in Outfit No. 1.

Easy Model-Building

Steelyard Balance—Travelling Crane

THE two models illustrated this month are both simple to construct, but they do give those who build them opportunities for some really good play with them. In fact, I feel sure that every model-builder who constructs them will be some time before he finds that he wants to dismantle them to build something else.

The first of the models is a steelyard balance used for weighing purposes. The object to be weighed is suspended from the short arm of a lever balanced at a point not far from its end, and a movable weight is then pushed along the longer arm until a balance is effected.

The base of the model is a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate. Two Trunnions are bolted to it as shown and an upright $2\frac{1}{2}''$ Strip is bolted to each of them.

The main lever 1 consists of two $5\frac{1}{2}''$ Strips bolted together overlapping six holes. Two Flat Trunnions are bolted to the end of the lever and a $\frac{3}{8}''$ Bolt passed through their end holes is held in the boss of a 1" Pulley. The fulcrum of the lever, about which it turns when the balance is in use, is a 2" Rod 2 which passes through the 5th hole from the end of the lever and also through the boss of a Bush Wheel 3. The bolts that fix the Bush Wheel to the lever hold also two Stepped Curved Strips, which are bolted together at their upper ends, and one of them holds also an Angle Bracket, the purpose of which is to limit the movement of the lever.

The short end of the lever is connected by a lock-nutted bolt to a $2\frac{1}{2}'' \times 2\frac{1}{2}''$ Double Angle Strip 4, which is bolted at its upper lug to a second Double Angle Strip, the same bolt holding also a $5\frac{1}{2}''$ Strip 5. Two $2\frac{1}{2}''$ Strips 6 are pivotally joined by lock-nutted bolts to the lower ends of the two $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips, and at their other ends they pivot on a $3\frac{1}{2}''$ Rod 7.

To $5\frac{1}{2}''$ Strip 5 two $5\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plates are connected by means of Fishplates and Angle Brackets.

The adjustable weight is a 1" Pulley 8 fitted with a Tyre, which is connected to a Fishplate bolted to a Loaded Hook.

Parts required to build the Steelyard Balance: 4 of No. 2; 4 of No. 5; 4 of No. 10; 3 of No. 12; 1 of No. 16; 1 of No. 17; 4 of No. 22; 1 of No. 24; 4 of No. 35; 29 of No. 37a; 23 of No. 37b; 2 of No. 38; 2 of No. 48a; 1 of No. 52; 1 of No. 57c; 2 of No. 90a; 4 of No. 111c; 2 of No. 126; 2 of No. 126a; 1 of No. 142c; 2 of No. 189.

The second model is a crane, of the type that travels under its own power.

The base of the crane consists of a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate, which is mounted on 1" Pulleys fitted with Rubber Rings. The sides of the cab consist of $5\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plates and $2\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plates arranged as shown and connected by Angle Brackets to the $4\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plate 1 that makes up part of the floor of the cab. A $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plate fixed by bolts to the lugs of two Trunnions one on each side of the model completes the floor of the cab.

The roof of the cab is made up of a $2\frac{1}{2}'' \times 2\frac{1}{2}''$ Curved Plate 2, which is extended with a $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plate. Two $2\frac{1}{2}''$ Strips overlapping three holes are bolted to the crown of the roof and the unit is fastened by Angle Brackets to each side of the cab.

The back of the cab is a straightened out $2\frac{1}{2}'' \times 2\frac{1}{2}''$ Curved Plate bolted to a $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip, which joins the $2\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plates forming the sides of the cab. A Flat Trunnion and a $2\frac{1}{2}''$ Stepped Curved Strip are bolted to the back as shown.

A $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip 3 is fastened to the front of the cab as shown and the bolts holding it also hold Fishplates 4 and 5 in position.

Each side of the jib consists of two $5\frac{1}{2}''$ Strips joined at the top by two Angle Brackets and a Fishplate. The lower ends of the jib sides are pivotally lock-nutted to the Fishplates 4 and 5. The jib is braced with interlaced Cord as shown. A 2" Rod is mounted in the second to top holes of the jib and a Crank Handle 6 is journalled in the cab sides as shown. A length of Cord is tied to the Crank Handle and wound a few turns around it and then is led over the Rod at the jib head. A small Loaded Hook is attached to the end of the Cord.

The cab structure is pivoted on a 2" Rod 7 passed through the travelling base and held by a Cord Anchoring Spring. The Rod carries also a Road Wheel and two 1" Tyres 10, placed above and below the Road Wheel. A Bush Wheel 11 holds the cab in place on the Rod 7.

Parts required to build the Travelling Jib Crane: 4 of No. 2; 5 of No. 5; 3 of No. 10; 8 of No. 12; 2 of No. 17; 1 of No. 19g; 4 of No. 22; 1 of No. 24; 4 of No. 35; 44 of No. 37a; 40 of No. 37b; 8 of No. 38; 1 of No. 40; 2 of No. 48a; 1 of No. 52; 1 of No. 57c; 1 of No. 90a; 2 of No. 111c; 2 of No. 126; 2 of No. 126a; 2 of No. 142c; 4 of No. 155; 1 of No. 176; 1 of No. 187; 2 of No. 188; 2 of No. 189; 2 of No. 190; 1 of No. 191; 2 of No. 200.

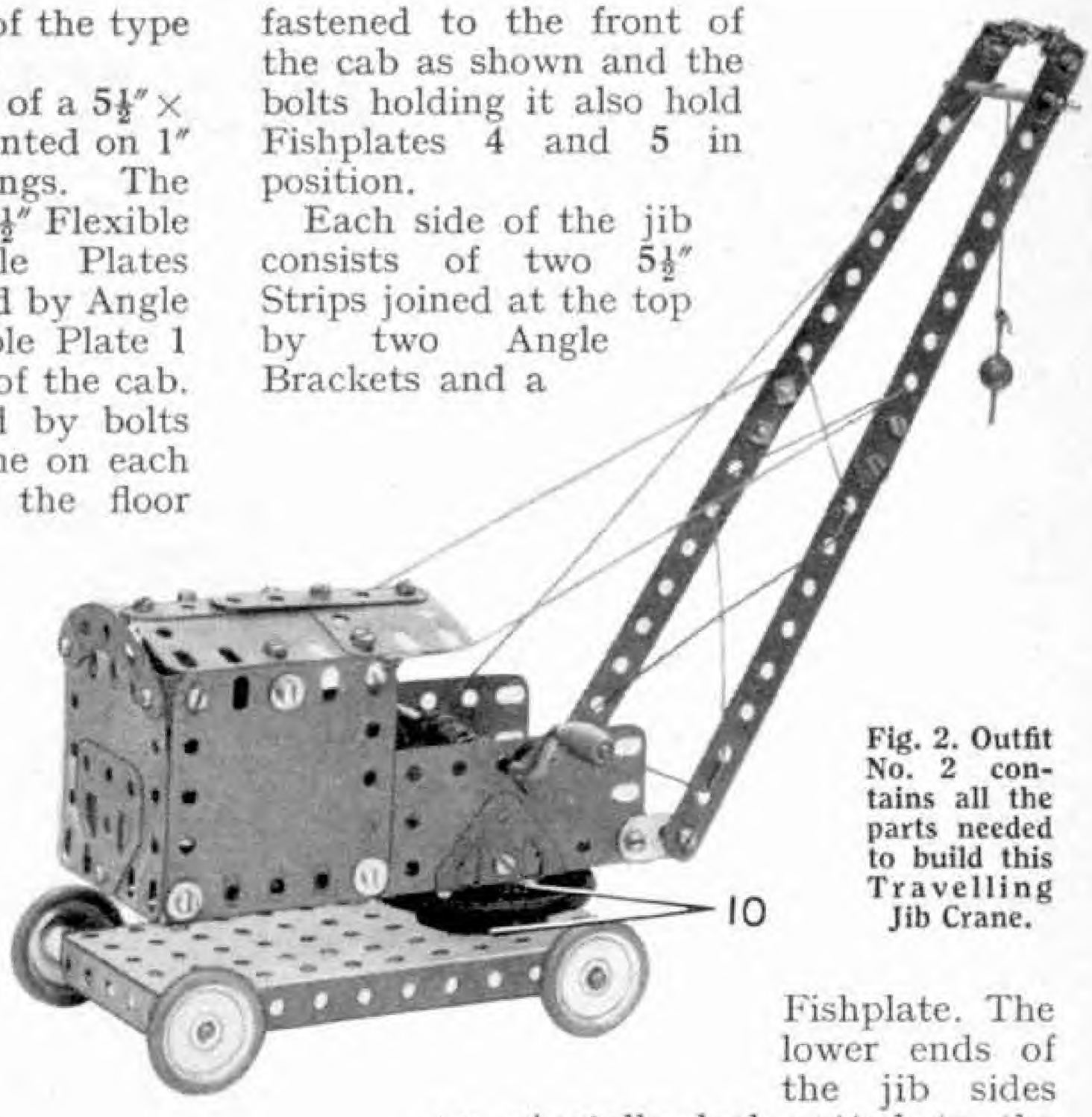


Fig. 2. Outfit No. 2 contains all the parts needed to build this Travelling Jib Crane.

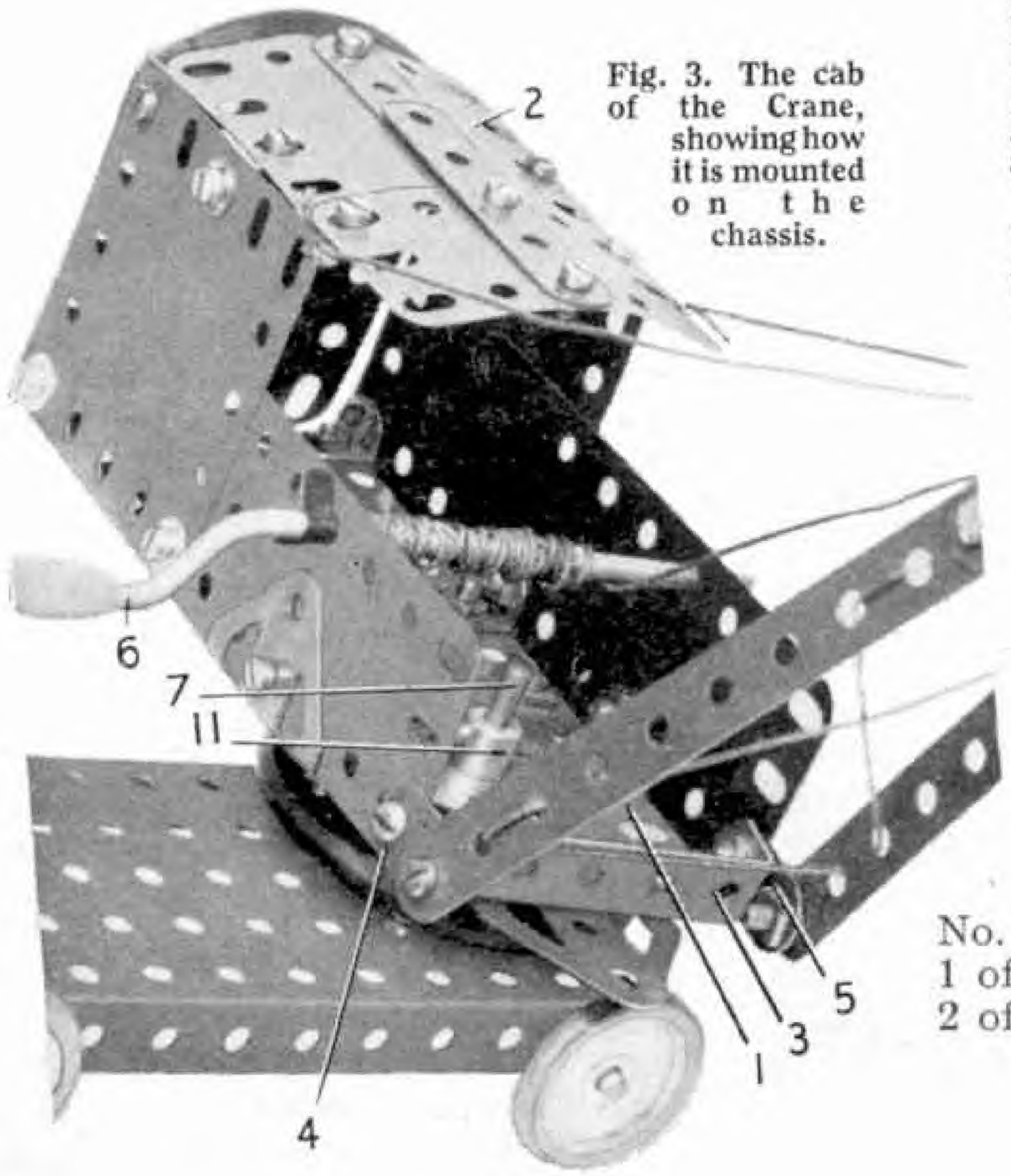


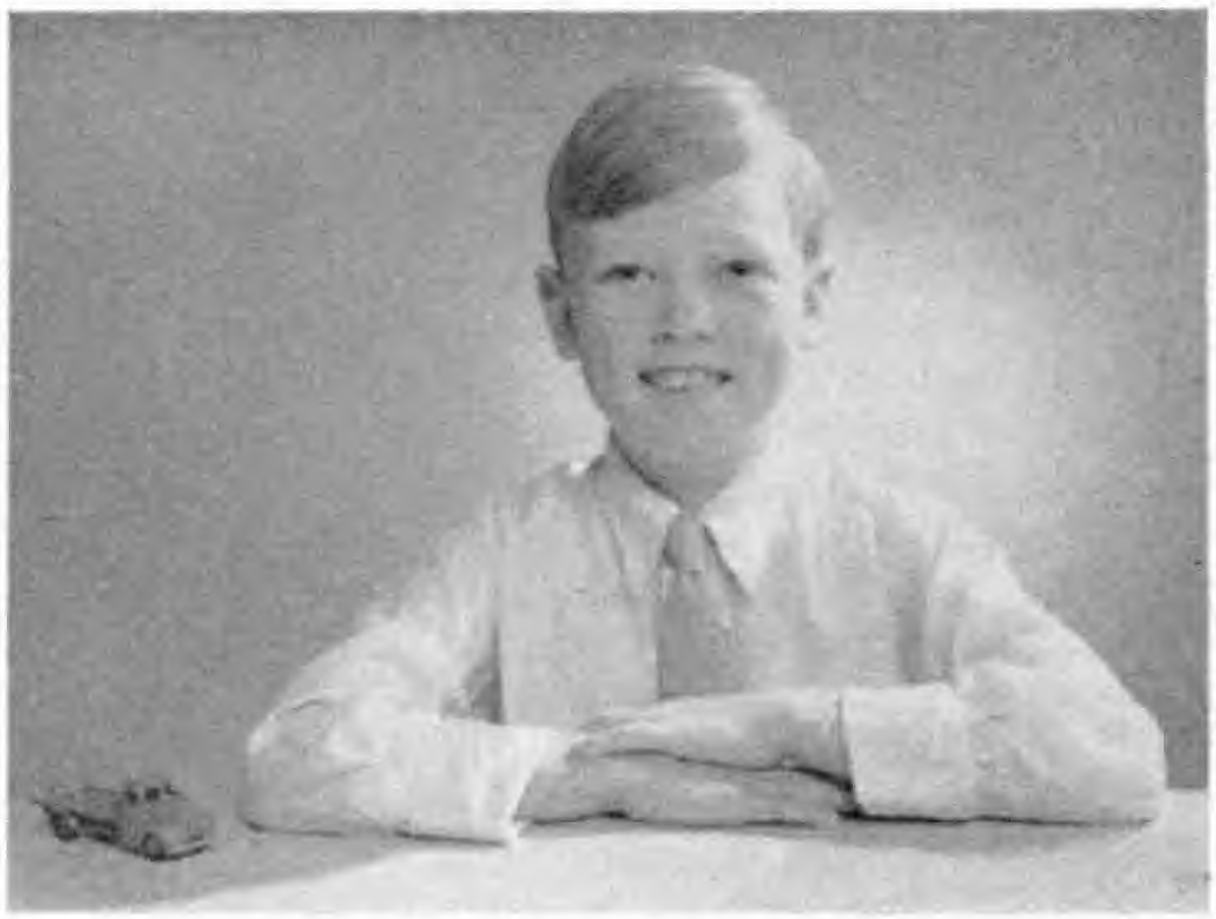
Fig. 3. The cab of the Crane, showing how it is mounted on the chassis.

DINKY TOYS NEWS

By **THE TOYMAN**

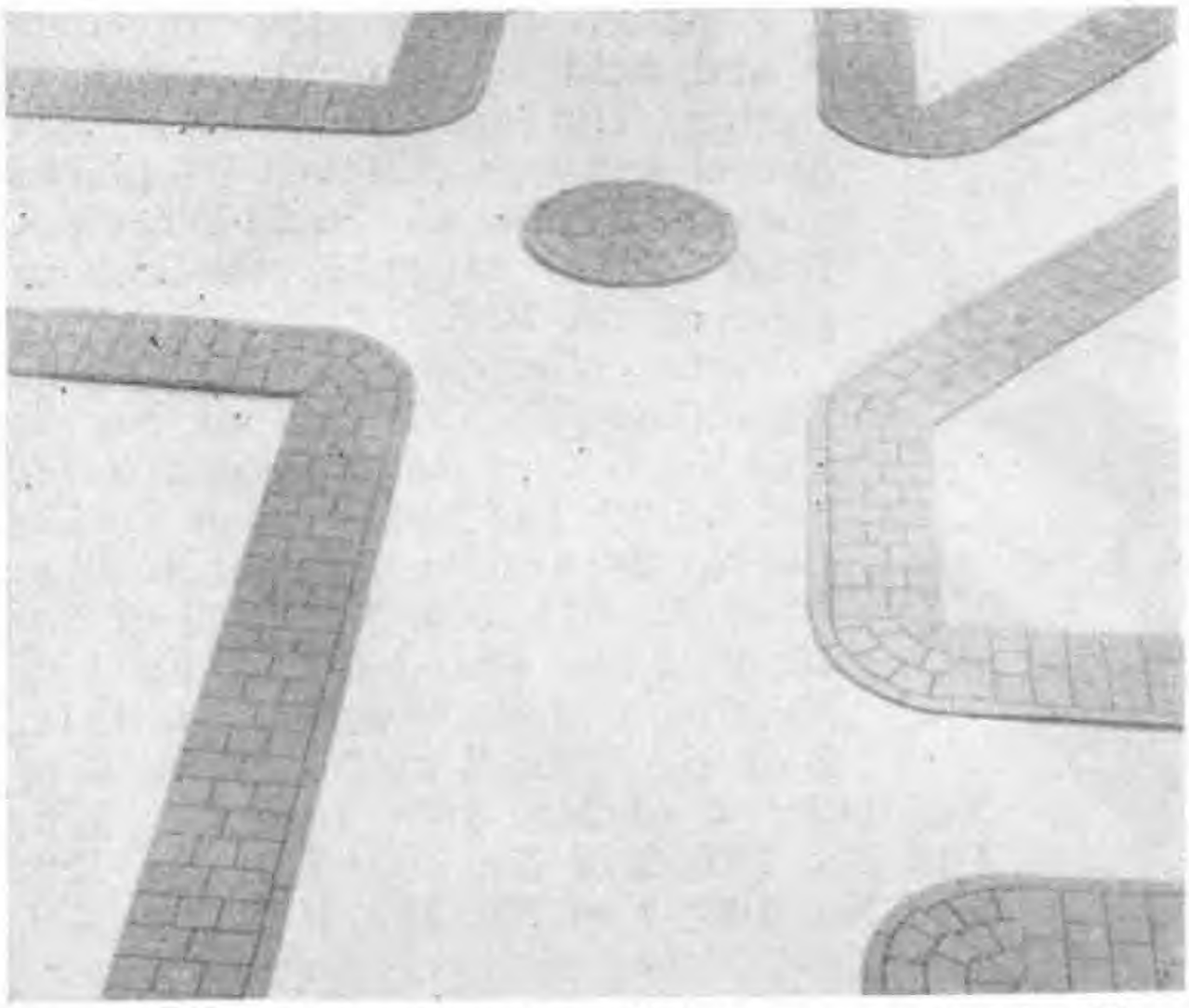
APPLICATIONS for the Dinky Toys Collector's Licence continue to reach us in large numbers each day and it is very evident that collectors really welcome this latest development in the Dinky Toys collecting hobby. If you have not already applied for your Licence, you are missing something of the fun and pleasure you can obtain from Dinky Toys collecting, and you should write now to the Secretary at Binns Road, Liverpool 13, for yours. There is no charge for it.

And don't forget that every month Stirling Moss, holder of No. 1 Licence, selects a number from those of all Licences issued, and the holder of the one carrying the chosen number is invited to Liverpool, with his parents, to stay at one of the best hotels in the city and spend a whole day seeing how Dinky Toys and other products of Meccano Ltd., are made, all at the firm's expense. You may be the lucky one any month.



This is Robert Lewis Sinkinson, a member of the Dinky Toys Club and a regular reader of the "Meccano Magazine". He lives at Stafford.

One of the accompanying pictures shows an interesting road junction plan made up from pieces in the Dinky Toys Pavement Set. This Set is a useful addition to the Dinky Toys range that has been enthusiastically welcomed by collectors who make splendid use of the components in arranging a layout on which to run their Dinky Toys cars, lorries and other vehicles. Layouts can easily and quickly be made up, and if not permanent can then be cleared away without trouble when it is time to go to bed!



One of the road junction plans that can be arranged with a Dinky Toys Pavement Set.

Now for some news of the month's new Dinky Toys. Once again I have two fine new items to bring to your notice and I am sure you will be pleased with both. They are a most appealing miniature of the Singer Gazelle, Dinky Toys No. 168, and another representative of the modern big American cars, the Plymouth Plaza, which is listed as Dinky Toys No. 178.

The Singer Gazelle is a very compact four-seater saloon, capable of accommodating six on occasions, and its fittings and general quality



This fine representative of the famous Singer cars is now included in the Dinky Toys range. It is the Singer Gazelle and is listed as Dinky Toys No. 168.

are of a very high standard. The Dinky Toys Singer miniature has fully glazed windows and is available in two two-tone colour finishes. In one scheme the upper part and top of the body is cream, and the lower part chocolate brown. The tyres are black and bumpers, radiator grille and headlamps aluminium. In the second the upper part and top of the body is light grey and the lower part green. The other details are similar to the first scheme.

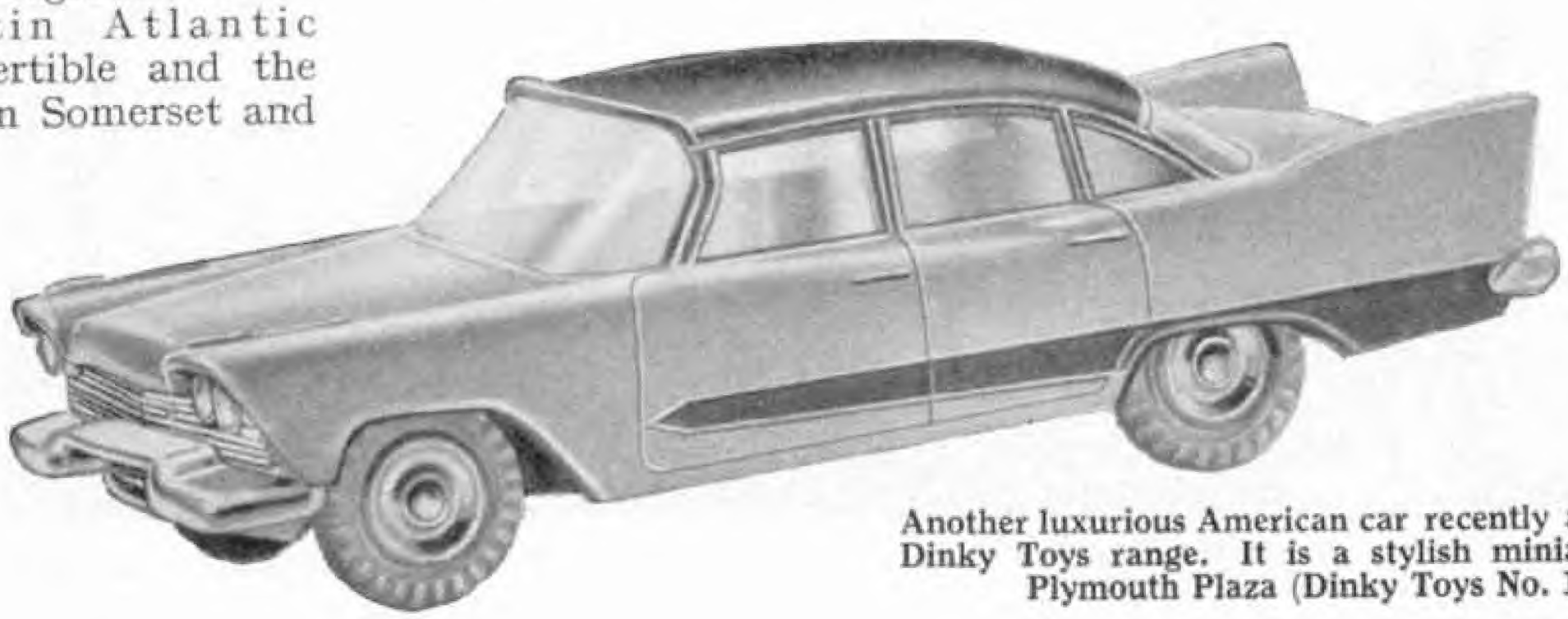
The Dinky Toys model of the Plymouth Plaza is a beautifully detailed miniature of this glamorous American family car. It has the distinctive flight-sweep styling, dual headlamps and ornate grille, super spot tail lights and the smart two-tone finish of the real vehicle. It can be obtained with the body finished in light blue with dark blue roof and flashes, or with a salmon pink body, light green roof and side flashes.

There seems to be no limit to the number of ways in which Dinky Toys can be used and here are two novel ones. Some time ago one of my young friends sent me a photograph of his own Motor Show! This was a Dinky Toys Motor Show, based, of course, on the real Earl's Court Show, and you can see from the illustration what a wonderful time he must have had.

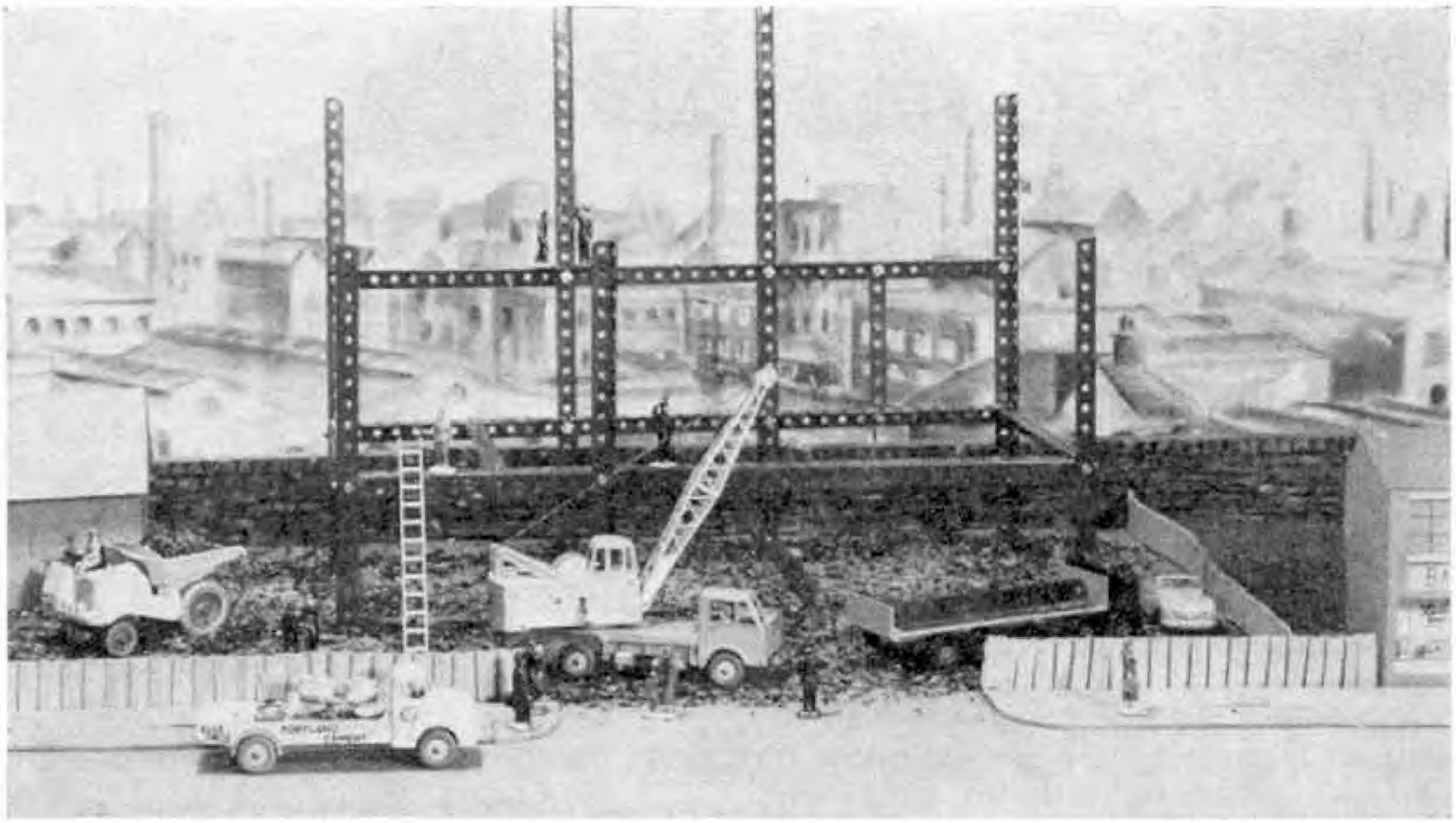
The three vehicles grouped together are all Austins and they seem to be attracting a great deal of attention. The vehicle in the foreground is the Austin Atlantic Convertible and the Austin Somerset and the Austin Van are in the rear. The stand on the left is exhibiting a Morris Oxford and on the right of the picture is a Jaguar XK120 Coupe.

The background consists merely of two sheets of cardboard, on which the windows, arched openings, etc., have been cleverly drawn. The "Stands" on which the exhibits are placed are made out of cardboard too, painted a dark colour to give the impression that the cars, etc., are on carpets. The barriers are simply pieces of cotton twisted around and tied near the heads of pins that are stuck in the baseboard. The illustration shows only a portion of my young friend's display, but it is sufficient to give an idea of the fun that his idea gave him. You too could enjoy good fun with your own show.

Now for my second suggestion. I know that many Dinky Toys Collectors are also keen Meccano users, and on page 28 is a picture that shows a novel way in which the two hobbies can be combined. The scene represents the erection of the girder work for a large building, in which Meccano Angle Girders form the framework, the lifting operations all being carried out by a Dinky Supertoys Lorry Mounted Crane. The spider men too are there, ready to bolt



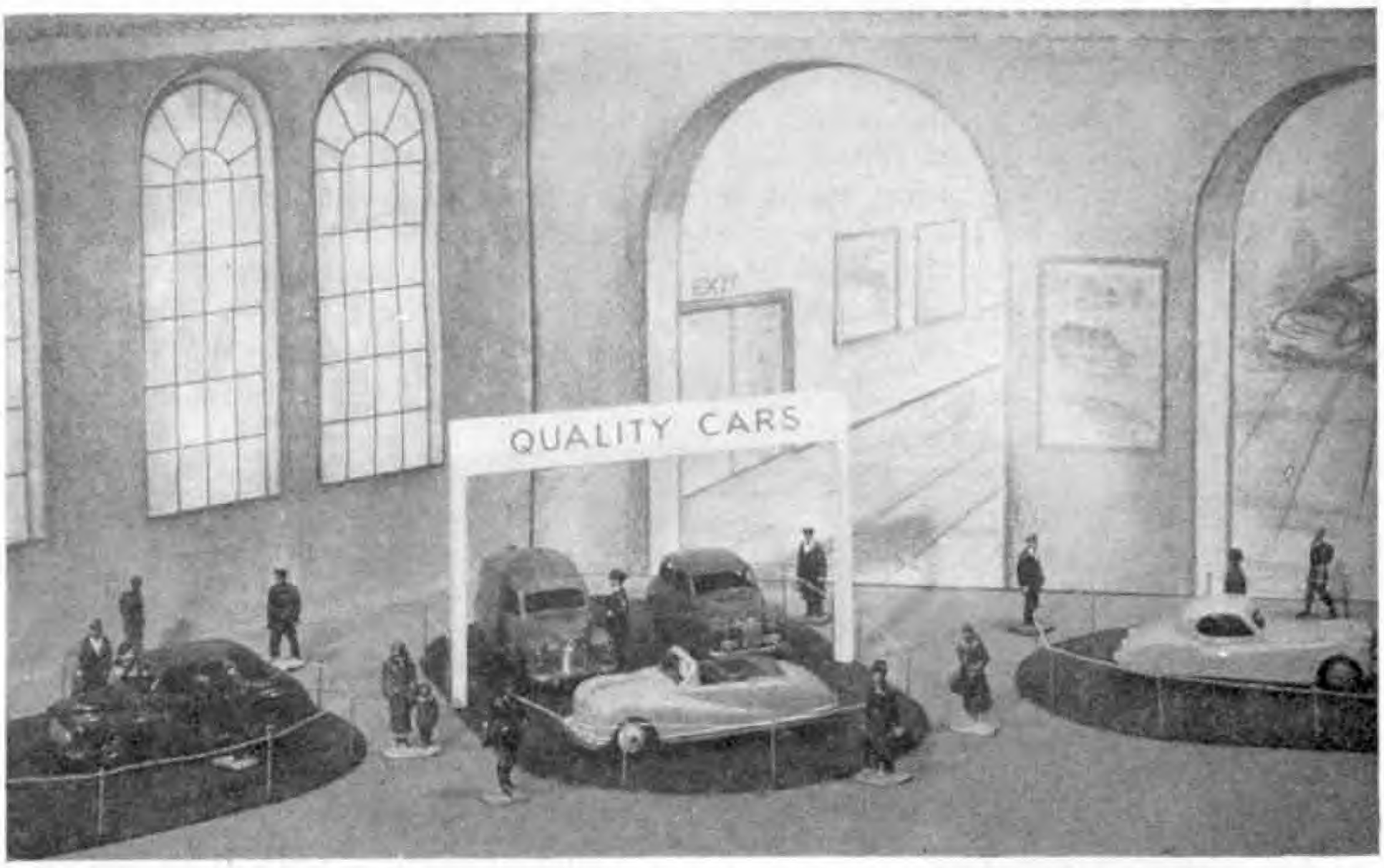
Another luxurious American car recently added to the Dinky Toys range. It is a stylish miniature of the Plymouth Plaza (Dinky Toys No. 178).



This attractive building site scene shows how Meccano owners can use their Outfits to provide realistic settings for playing with Dinky Toys.

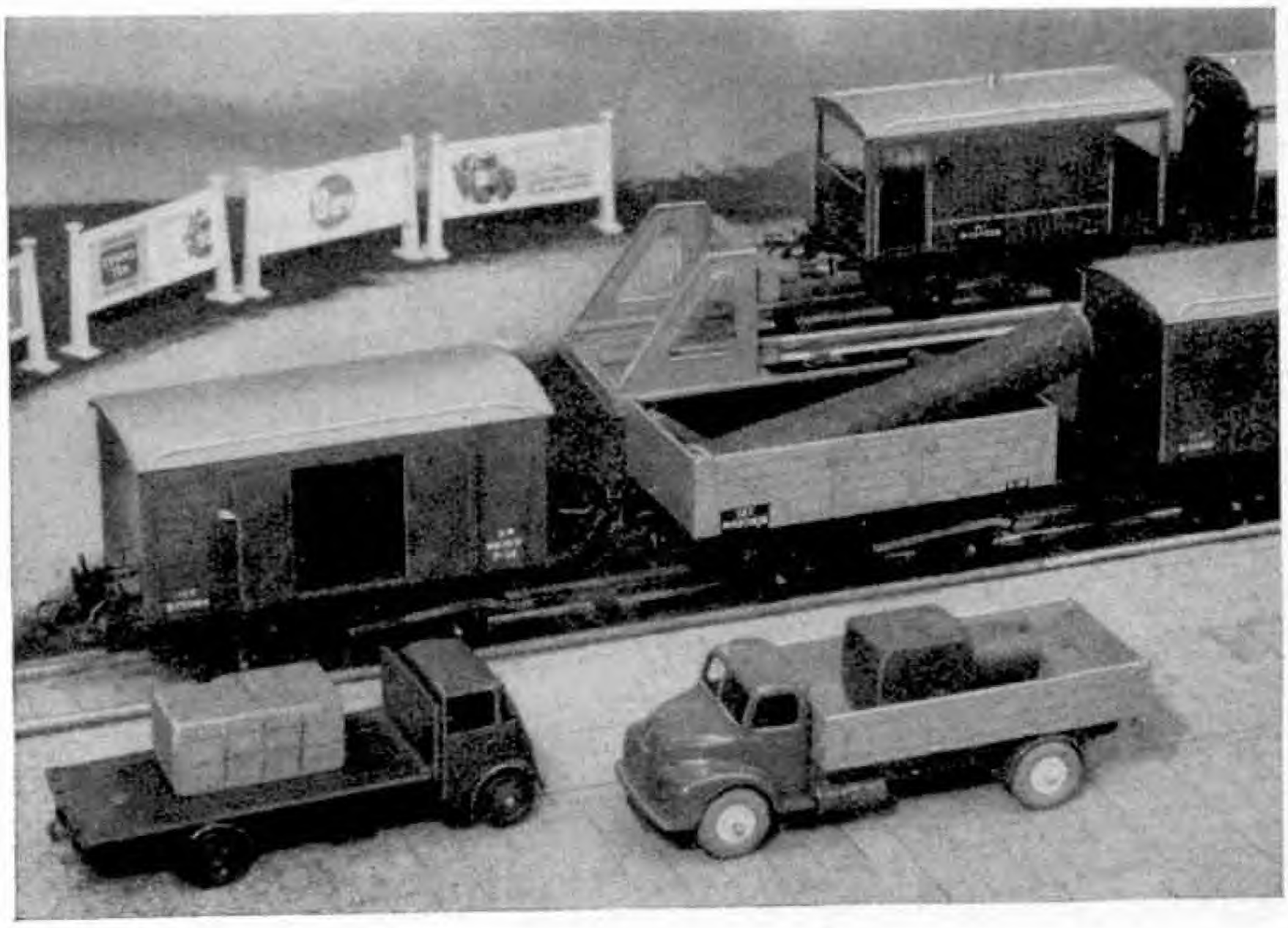
and rivet the girders together. At the time this photograph was taken a Girder was being lifted up by the Lorry Mounted Crane from a Foden Flat Truck with tailboard and two of the spider men are waiting nonchalantly for it to reach them.

It is amazing to see how many Dinky Toys can be used in a scene of this kind. Besides those already mentioned there is a Muir-Hill Dumper Truck conveying rubble from the site to a nearby dump and on the right is the car of the clerk-of-works, whose choice is an Austin Convertible. Then there are the workers, and of course the "side-walk superintendents", as the Americans call them, the lookers-on who crowd round the building sites and holes in the ground to see what is going on, and sometimes to get in the way! The small boy and his mother seem to have got too interested, as they might be in difficulties if that Girder near them were to swivel round suddenly. A wonderful scene, and the more you look at it the more you will find.



Why not arrange your own Motor Show on the lines shown here? It will provide you with lots of fun and pleasure.

"Tommy Dodd" writes about:



Making a Good Start

THERE is nothing like making a good start, so first of all let me begin the month well by wishing my Gauge 0 friends a Happy New Year. Many of you reading this have just become the owners of Hornby Trains and will want to be sure that you make a good start in the splendid hobby of miniature train running. You have probably had a great deal of enjoyment from your train running by this time, but I would just like to remind you to read the instructions included in your Hornby Train Set. These tell you what you should do if you want your engine and coaches to have long lives and to give you enjoyment for a long time to come.

In the scene above Hornby rolling stock and Dinky Toys vehicles are shown in a goods yard, where the "roadway" alongside the track is paved with card. The doors of the No. 50 Van are open ready for loading.

Richard King, a five-year old enthusiast, whom you see in the picture at the top of the next page, has already made a good start with his Hornby railway. That is obvious from the illustration, where he certainly seems to be enjoying himself. He has his railway on the floor, which is so often the starting place of many miniature systems. This gives a firm level base for the track so long as a nice clear area on the carpet or linoleum can be used for the railway. Changes of level due to mats and so on are to be avoided. But don't move such things without permission!

There is no need for me to go into detail regarding the assembly of rails. You will already have discovered the right way of doing this, but don't forget the Rail Connecting Plates. These are important because they prevent the Rails from working apart at the joints once the railway is in use. Perhaps you have had some extra Rails given to you in addition to those contained in your Set. When using these make sure that the track is not strained in any way in making up some particular formation.

As you progress in your railwaying you will see to these things automatically and of course the necessary oiling of the Locomotive mechanism and of the axle bearings of the rolling stock will be attended to from time to time. Remember that only a little oil is required. It really works its way into the moving parts of the clockwork, so that they do their job correctly, and just a little oil will last a long time when it is applied to the axles of Hornby rolling



Richard King, who is 5 years old, is a keen Hornby railway owner. Here he is obviously having a happy time with his trains.

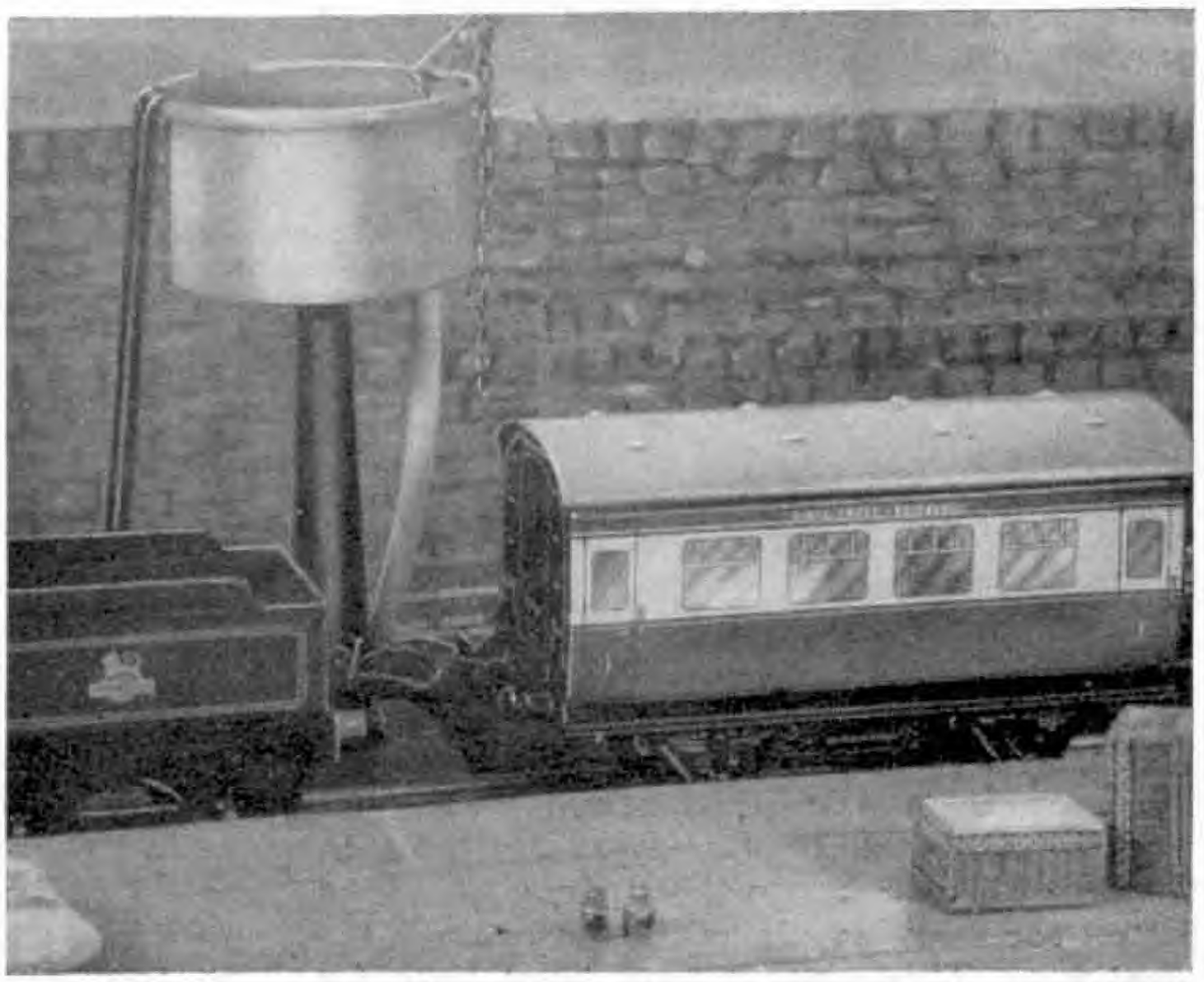
stock. The moulded wheels that are standard require just a little lubrication to ensure smooth and quiet operation.

As the railway begins to grow, or perhaps even before it reaches this stage, you will be thinking out various ways of making things more interesting. Most Hornby Train owners are collectors of Dinky Toys as well and some fine games can be worked out by using your trains and your motor vehicles and so on together. You will see what fun is possible from the picture at the head of the opposite page. There are several Hornby goods vehicles lined up in a small goods yard. One of them, the Open Wagon, carries a miniature "log", the sort of thing that you can cut from a suitable stick without much difficulty. Then, a specially attractive point, the doors of the No. 50 Goods Van are open ready for loading. The home-made crate fashioned from a piece of wood and carried on the Guy Flat Truck looks as though it is intended for placing in the Van.

This is where the Coles Mobile Crane, Dinky Supertoys No. 971, comes in handy. When working at ground level it can be made to poke its jib through the doorway of a Hornby Van, an operation that calls for a "crane man" with nimble fingers but is excellent fun. Mobile cranes, fork lift trucks and similar appliances are being used to an increasing extent in real practice nowadays.

As with goods, so with passenger trains, there is always some little extra touch that you can add. I wonder how many of you have discovered that the Train Name and Destination Labels intended for Hornby-Dublo Coaches can be used quite reasonably on Hornby No. 51, or even No. 31, Coaches? The length of these Labels, representing the name and destination boards carried by so many real trains, is nicely in proportion to the length of a Hornby Gauge 0 Coach and I have included the picture below to show you how this scheme works out. The use of these Labels, which are readily obtainable, adds considerably to the effect of a miniature express. When you read, as in the illustration, *Kings Cross–Edinburgh* on your Coaches you really feel that your train is going somewhere!

You can use both Name and Destination Labels adjoining one another, if you wish, just as they are often found on real coaches, but as Hornby Coaches are necessarily short I think the use of a single "board" on each side looks better. Don't you?



A Hornby-Dublo Destination Label is used here on a Hornby No. 51 first class Coach. This is an idea that will appeal to some Gauge 0 owners, and the Labels are readily available separately.

Of General Interest

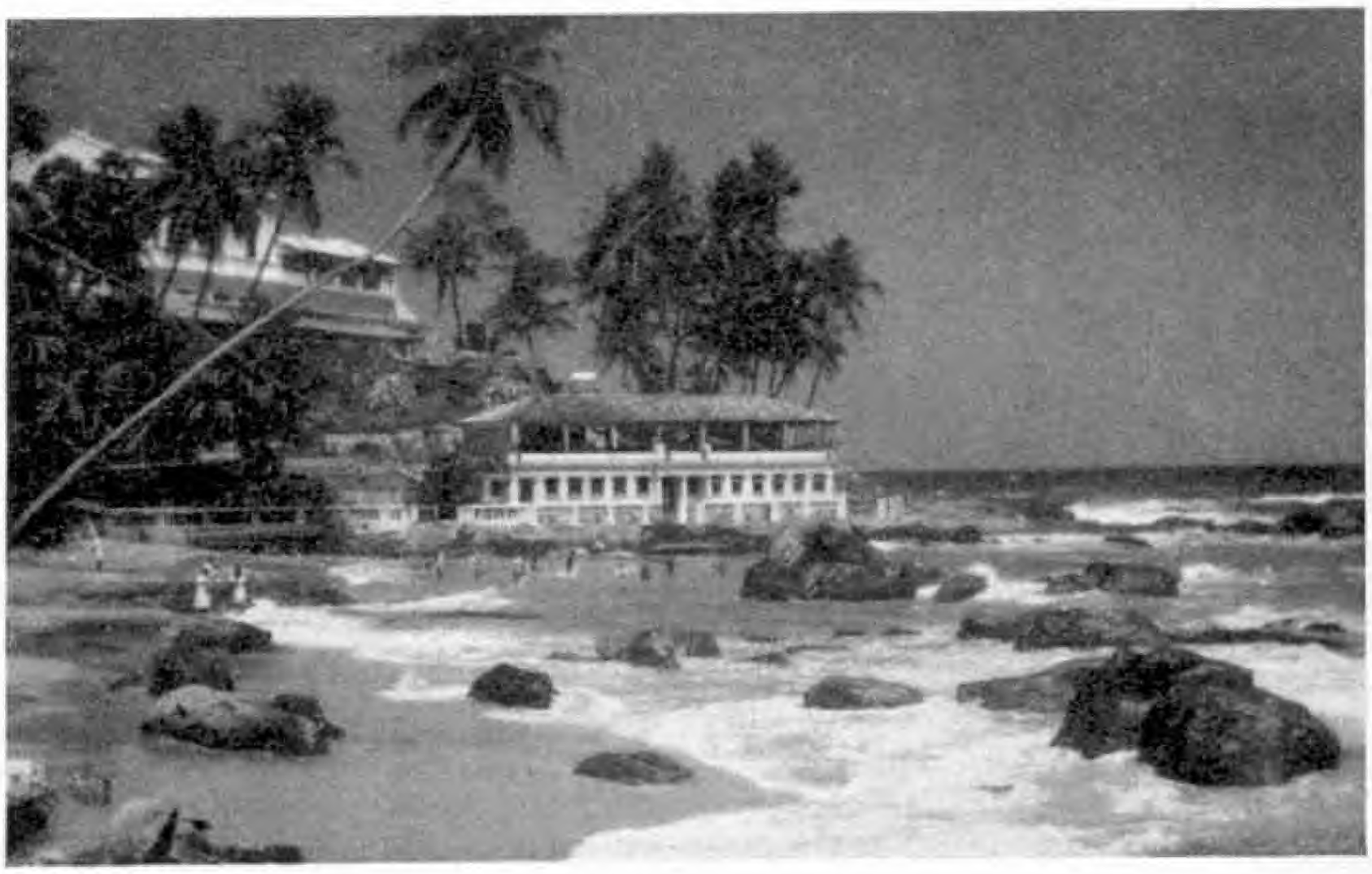


The Water Buffalo, a giant 20-ton tractor designed to travel over treacherous swamps. Shell photograph.

THE formidable object seen in the picture above is a Water Buffalo. Most of you will realise that in plainer language it is a tractor, but it is a very special one that has been designed and built to work in swamps. It was made by James A. Cuthbertson Ltd., Biggar, Lanarkshire, for use in oil exploration work in Canadian muskeg territory. It can travel over difficult swamps quite easily because its broad tracks exert a pressure on the ground of only 2 lb. per square inch. An unusual feature is that the tractor can lay out a cable across particularly difficult swamps, to form a ropeway with which to haul trailers over the worst stretches.

The Water Buffalo has a Leyland 150 h.p. diesel engine, acting through a Leyland pneumo-cyclic semi-automatic gear-box and centrifugal clutch.

We are now in January, a month when we in Great Britain can expect really cold weather probably—certainly in many areas — accompanied by snow. So I have introduced the picture below to cheer you up. It shows a sandy beach in Ceylon, a wonderful playground at all times of the year. The name of the beach is Mount Lavinia, and it is about 8 miles from Colombo, the capital of Ceylon. If you feel cold and depressed during the next few weeks, it would perhaps warm you up a little just to look at it now and again!



Lavinia Beach, in sunny Ceylon, the pearl of the Indian Ocean. Photograph by N. Navendrarajah, Colombo.



Deep Pit in London

A New Post Office Railway Station

By F. H. Howson

ONE of the largest pits ever dug in London is being made ready for a tube station that will be unlike any other in the world. Both pit and railway are unique in several ways, for across the bottom of the 75 ft. deep hole rumble small trains, carrying not passengers, but letters and parcels, and *running withbut drivers*.

The excavation is sited in Rathbone Place, just north of Oxford Street, in an area in which there are many large buildings, and it had to be made without disturbing the surrounding ground. To have done so would have been serious, for the buildings near it would probably have developed cracks and been rendered unsafe. But this risk has been entirely avoided by the use of a method, brilliant in its conception, of post-stressing the huge pit walls.

In order to explain properly the reason for this undertaking it is necessary to go back 30 years, when the Post Office Railway came into being to accelerate the passage of mail across London. The present five year job in Rathbone Place is a furtherance of that scheme, providing for a new railway station and a new sorting office above, and consequently for a better postal service for London's West End.

The tunnels of the Post Office Railway were already excavated as early as 1914. But except for storing art treasures during the First World War, they were not used for mail trains until 1927, when the writer himself played an active if minor part in initiating the train service. The tunnels extend from under the Mount Pleasant Sorting Office, Faringdon Road to Whitechapel in the east and to Paddington in the west, giving a route 6½ miles long connecting large Post Offices and railway termini. The railway has an average depth of 70 ft., running both under and over the routes of passenger tubes, and bags of mail are fed to it down chutes or raised from it by elevators, lifts and inclined conveyor belts. Beside providing speedy transport for mail it helps to relieve the streets of Post Office vehicles, tasks it has performed faithfully and efficiently since its inception.

It was intended that the tube would

This article deals with a London tube railway in which the cars have no drivers. It carries mail across London, between Whitechapel and the West End, and to cope with increasing mail traffic a new station, at a depth of 75 ft., is being constructed. The picture at the top of the page shows one of the new junctions that have had to be constructed in it.



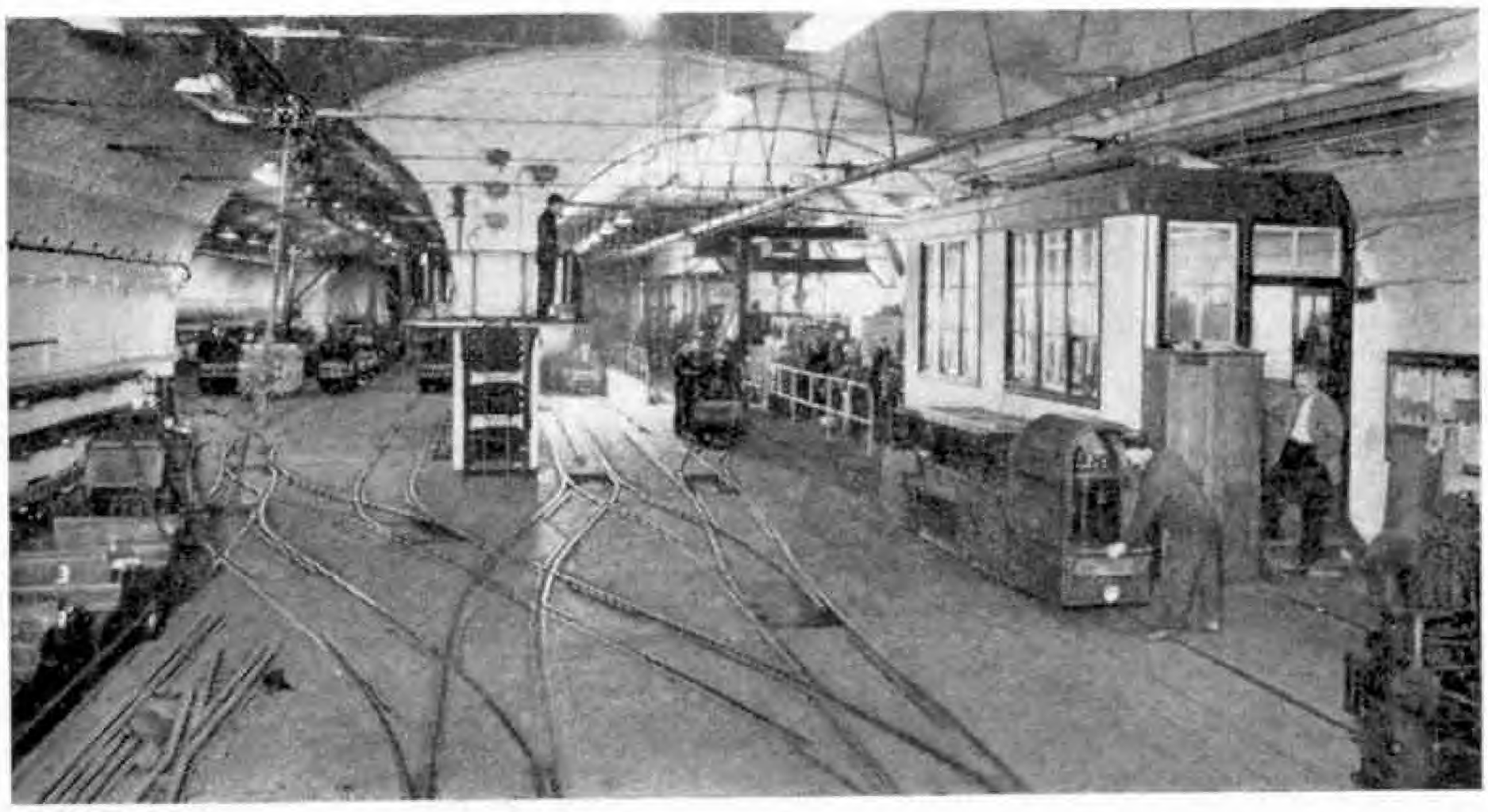
Off-loading mail containers at King Edward Buildings, one of the stations on the Post Office Underground Railway in London.

eventually be extended to the main railway termini of Euston, St. Pancras, King's Cross, Waterloo and even London Bridge. But this colossal undertaking would not only have had to be paid for out of revenue and taxes, but also to fit into the overall pattern of London's transport network in whatever form this may take in say 25, 50 or even one hundred years. The reader is well aware that there has been an almost complete revolution in transport, including that in the air, and even the art of letter writing may be affected in time, so the project must be wisely considered before being put into operation. However, the Post Office does not only plan for the future. It must also keep abreast of the times, and hence the presence of this large mysterious hole in the busy West End.

For some time now it has been increasingly difficult for the two existing main West End Post Offices, one for letters and one for parcels, to deal with the amount of mail received, partly because they are separate offices and partly because they are being hemmed in by the dense traffic that is a feature of the tremendous business expansion hereabouts. So it was decided to plan a super combined office, but this has also required the diversion of the railway so that it can pass through the basement of the new building.

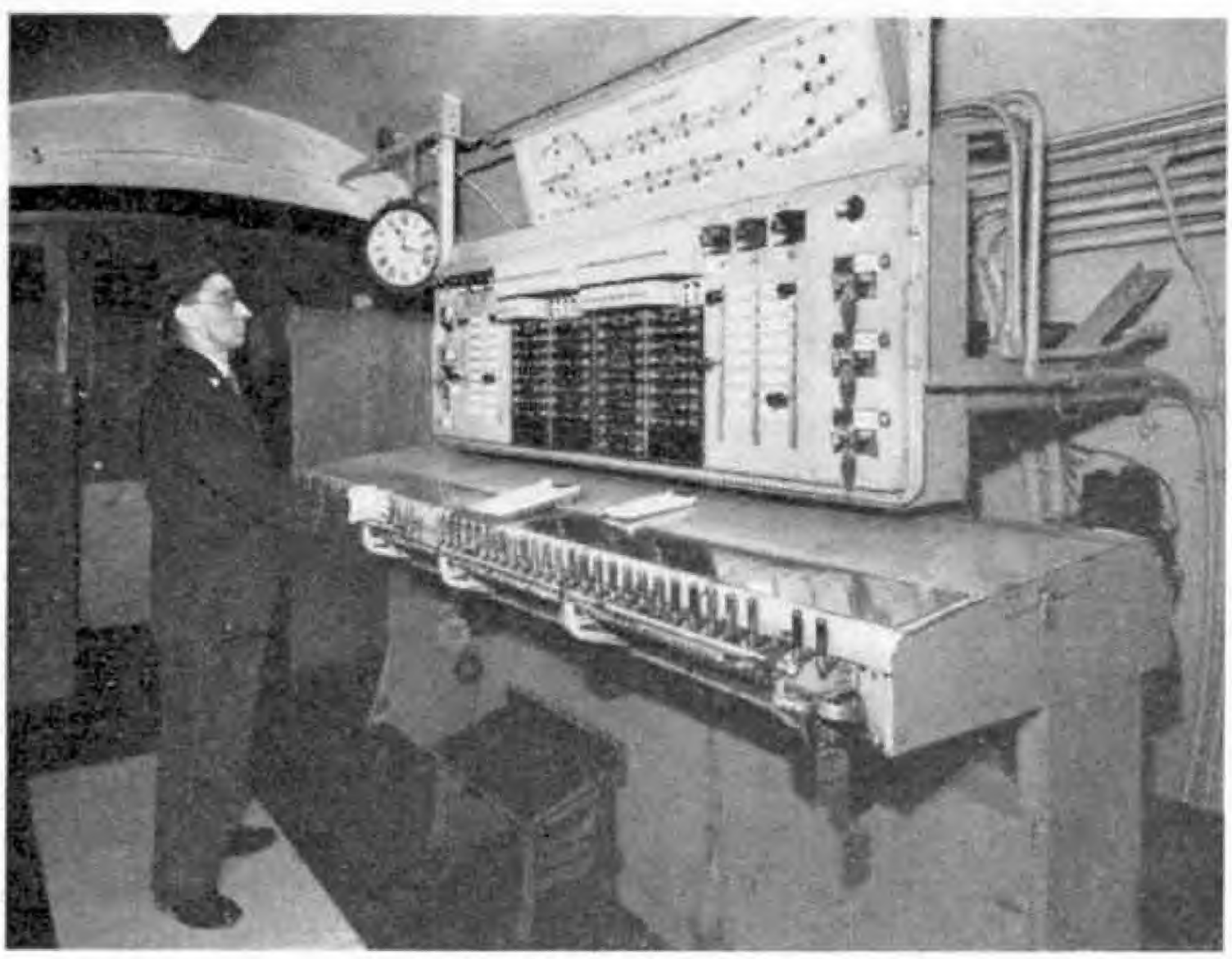
But what a basement this is! It will eventually be 200 ft. long, 95 ft. wide and 70 ft. deep, on a base of concrete no less than 13 ft. 6 in. thick in parts. This massive foundation is necessary because it has the job of anchoring the side walls and supporting the 80 ft. steel and concrete columns of a building that will itself be 70 ft. below ground and at the same time four stories above ground! In short, the new Post Office will be a tall building sunk to about half its height in the ground!

At present the sides are supported by a honeycomb of girders, but most of these will be removed and the columns partly cut away, leaving the two end opposing walls to take the main weight of earth. This was made possible by the use of the De Fresnay stressing system.



Repair Depot and Workshop

Imagine a tall concrete wall shaped in profile something like a boomerang. In the mass of concrete hundreds of pipes are embedded, emerging from the 13 ft. 6 in. base block at their lower ends and at their upper ends all over the face of the wall. Into these pipes are threaded bunches of steel wire, the top ends of which are anchored. Then just before the supporting



Control cabin—Mount Pleasant.

girders are removed the wires will all be tautened to the same tension as the thrust of the mass of earth against the wall. They will be wedged tight and, hey presto! there will be a huge excavation among high buildings seemingly unsupported except for a tapering wall and 250 miles of wire made into cables.

The tube railway's new tunnels will emerge into a spacious underground station in the basement. Above this will be a large railway machinery room and above this again will be a garage reached by downward sloping ramps. Still higher will be the main store rising to ground level, above which the building will develop into a large postal sorting office. The whole project is the first of its kind in the world.

The bags of mail are almost completely mechanically handled during their entire transit through the railway system and will be raised to the level of the sorting office by a unique method using a near-vertical pair of conveyor belts. The bags will arrive on one belt, only to be prevented from toppling back by another belt running flatly against the first. The two belts will envelop the bags gently, one belt being pressed against the other by a system of air pressure contained in nylon sheathing, and so will hoist the bags upward. At the top any ideas about the climbing efforts of Bruce's spider that one might have had during the ascent will be quickly forgotten, for each bag will be disgorged safe and sound to the awaiting staff.

Incidentally, a bag will suffer no hardship on its swift descent to the railway, for it will run down a spiral chute that limits and controls its speed and there will be no thuds at the bottom. The progress of the trains themselves is uncommonly smooth.

On the Narrow-Gauge in Spain—*(Continued from page 6)*

seventy miles on to Oviedo is completed over the metals of the F.C. Economicos de Asturias. The 2–6–0 that had come through from Santander was replaced by one of the spotless 2–6–2 tanks of the Asturian Railway, varieties of which were built by a number of German constructors. All of them are kept in immaculate condition.

Here it might be added that almost without exception every narrow-gauge engine we saw was superbly clean and well-maintained. Labour apparently is much more freely obtainable in the Works and running-sheds than is the case in this country, and evidence of the care with which maintenance is carried out is the fact that several of the locomotives in active use today were built over ninety years ago.

The headquarters and main depot of the Asturian system are situated on the north-western side of Oviedo, paralleled by the main line of the RENFE from Madrid to Gijon, which has its station a few hundred yards south of the narrow-gauge terminus. The few passenger trains using the modern-looking RENFE station provided little interest, apart from their impressive emerald green electric locomotives, some sixty of which have been supplied to Spain by the English Electric Company. With their 3,600 horsepower they are the most powerful locomotives ever constructed in Britain.

To make up for any lack of interest in the standard gauge, there remained one more narrow-gauge system to explore. In the older south-eastern quarter of Oviedo is the gloomy metre-gauge terminus of the Sociedad Vasco Asturiana, the seven daily trains of which meander the thirty miles to Collanzo and to San Esteban de Pravia.

Having photographed what proportion of the Vasco locomotive stock could be coaxed from the shed by the genial and enthusiastic foreman, we boarded our last narrow-gauge train—the evening "mixed" to San Esteban, headed, appropriately, by *Oviedo* itself, a neat and spotless 4–4–0 tank of 1903 vintage. And as, two hours later, *Oviedo* trundled into San Esteban and the sun set over the sea, we looked back nostalgically over the 320 metre-gauge miles that had given us so much pleasure since leaving Irun, and resolved that our next visit to Spain would not be long delayed.

The VertiVeyor Competition

Still Time to Enter this Contest



The "feed out" section of the VertiVeyor with roller discharge conveyor ready to receive the load from the swing tray and convey it by gravity to the required position in a factory. Illustrated by courtesy of J. Collis and Sons Ltd., London.

WE are now nearing the final date for sending in entries in this contest. The subject is an ingenious contrivance designed and made by J. Collis and Sons Ltd., London, for carrying loads from one floor of a factory to another. It is designed for use with roller conveyors on each floor that receive the goods and transport them to any position they are to occupy, and both feed in and discharge are automatic. The name of the appliance signifies its application in this way, for obviously it can be looked upon as a vertical conveyor, and the name VertiVeyor combines the beginning of one of these words with the end of the other.

There is still time for model-building enthusiasts to submit their versions in Meccano of this interesting mechanism to add to the entries already received. The picture on this page shows one section of the VertiVeyor. It illustrates quite clearly how the goods, carried up or down in a swing tray, are stopped at any selected floor and then transferred to the roller conveyor on which they travel to the required point. This picture will be very helpful to model-builders, when taken in conjunction with those that have appeared in previous issues and the description of the appliance and its working in the October issue.

Further details appeared in the November and December *M.M.s*, and those who have not seen these issues, or that for October, can obtain them by writing to the Editor at Binns Road, Liverpool 13, the cost of each, including postage. being 1/6.

The Competition is open to readers of all ages, living in any part of the world, and entries will be divided into two Sections, A and B. Section A will be for model-builders who will be under 15 years of age on 31st January, 1959, and Section B will be confined to model-builders who will be aged 15 or over on that date.

Photographs or drawings are all that is required, and although the model itself must be the competitor's own unaided work, the photographs or drawings may be prepared by others if necessary. The competitor's age on the 31st January, 1959, together with his full name and address, must be written clearly on the back of each photograph or drawing and these should be sent, together with a short description of the mechanical features of the model, to "The VertiVeyor Model-Building Competition, Meccano Ltd., Binns Road, Liverpool 13." Entries will be judged by Messrs. J. Collis and Sons Ltd. and Meccano Ltd. jointly.

List of Prizes to be Awarded

Section A	£	s.	d.
First Prize, Cheque for	10	0	0
Second Prize, Cheque for	6	0	0
Third Prize, Cheque for	4	0	0
Ten Prizes, each of a Cheque for ..	2	0	0
Section B			
First Prize, Cheque for	16	0	0
Second Prize, Cheque for	9	0	0
Third Prize, Cheque for	5	0	0
Ten Prizes, each of a Cheque for ..	3	0	0

Closing Date for Entries: 31st January, 1959.

Among the Model-Builders

By "Spanner"



Brian Hill, age 8, and his sister Carole, age 9, of West Norwood, London S.E.27, putting finishing touches to a model tower crane they have built.

A Simple Reversing Mechanism

The mechanism shown in Fig. 1 will provide model-builders with a very useful reversing mechanism for use in a variety of models. For instance, it could form a worthwhile addition to many small model cranes and other simple models in which it is desired to change the direction of operations.

The frame of the model consists of a $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flanged Plate to which are bolted two $1'' \times 1''$ Angle Brackets, and two Trunnions spaced from the Flanged Plate by Washers. A 2" Rod journalled in the upper holes of the Trunnions carries a 57-tooth Gear and a 1" Pulley.

To the $1'' \times 1''$ Angle Bracket 1 a Fishplate is fixed by means of a Threaded Pin 2. A second Threaded Pin 3 is fixed in the remaining free hole of the Fishplate.

Two $\frac{1}{2}''$ Pinions 4 and 5 are carried on a rocker, which consists of a Double Arm Crank 6 carrying a Triangular Plate 7, one hole of which is passed over the Rod. 8. The Triangular Plate carries two $\frac{1}{2}''$ Pinions, one of which is supported on a $\frac{3}{4}''$ Bolt that is lock-nutted in place. The Pinion 4 is mounted on a 2" Rod passed through the remaining free hole of the Triangular Plate.

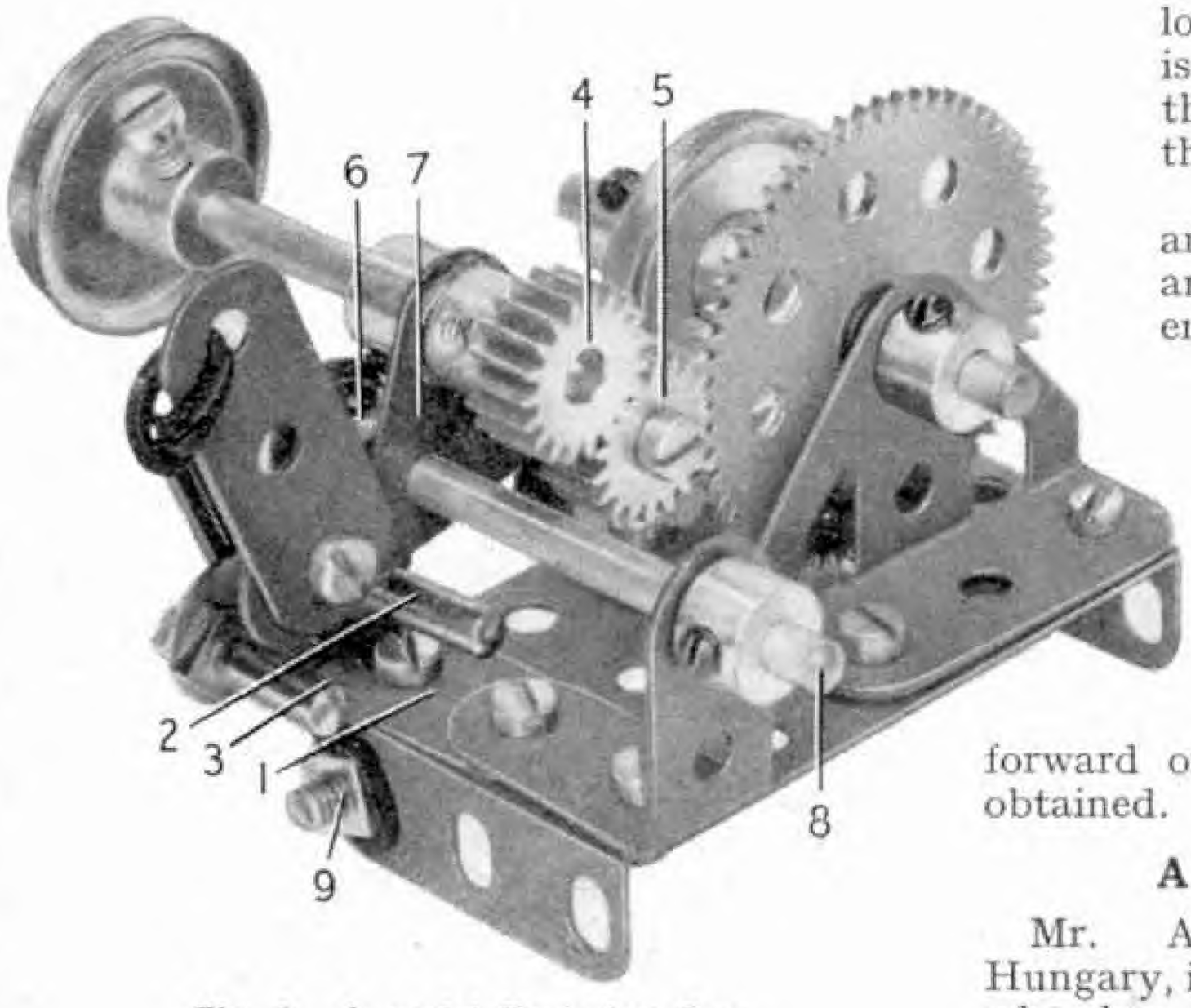
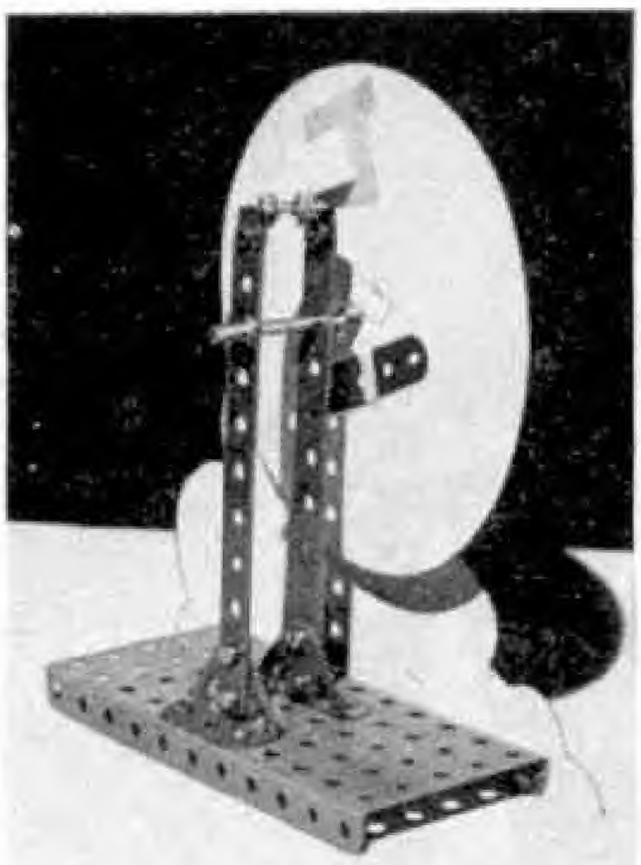


Fig. 1. A useful Reversing Gear.

A $1\frac{1}{2}''$ Strip is bolted at right-angles to the Double Arm Crank 6, and a piece of elastic, fixed at one end on a Bolt 9 and then looped through the $1\frac{1}{2}''$ Strip as shown, keeps either of the Pinions in engagement with the 57-tooth Gear as required. By moving the $1\frac{1}{2}''$ Strip, either of the Pinions 4 and 5 can be made to mesh with the 57-tooth Gear, a drive in either forward or reverse directions thus being obtained.

A Novel Weather Prophet

Mr. Andreas Konkoly, Budapest, Hungary, is a very keen Meccano enthusiast who has previously sent me details of



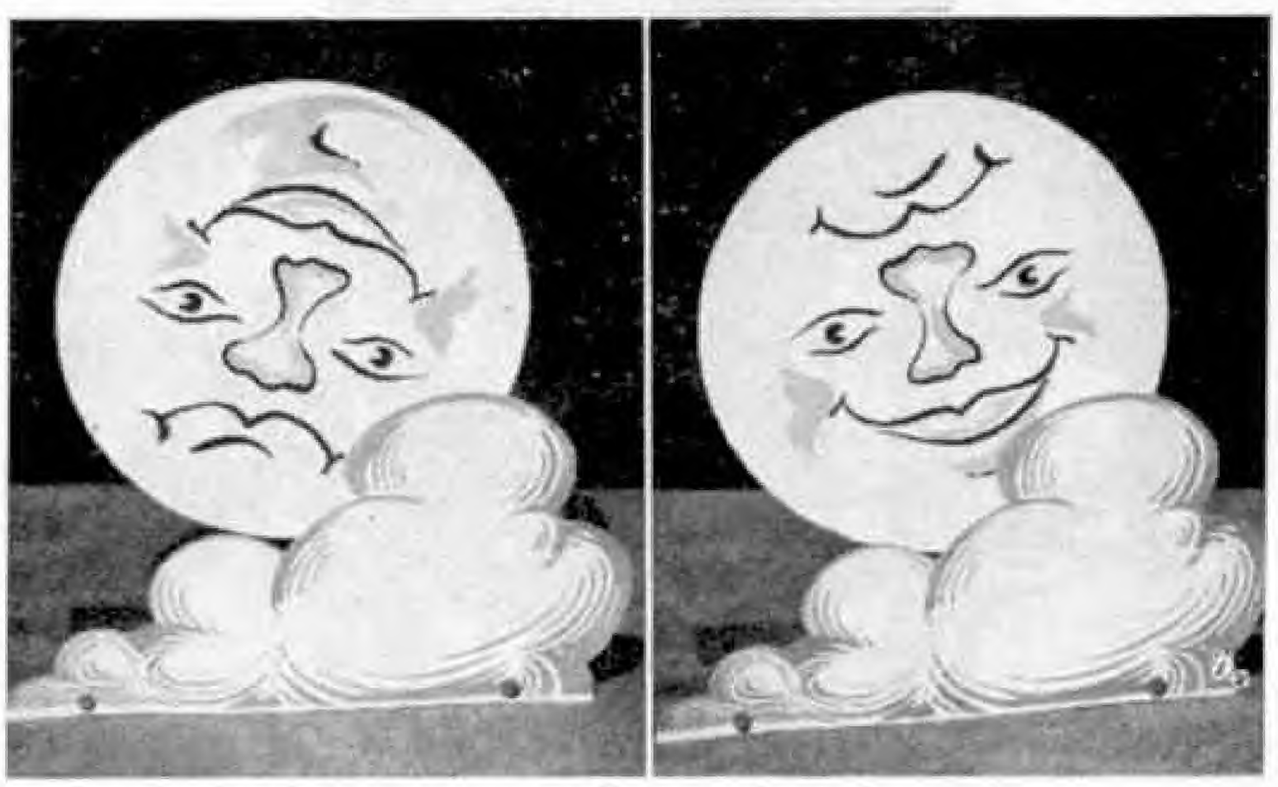


Fig. 2. A Meccano model for weather forecasting.

models and mechanisms he has devised. For instance, recently he wrote to tell me about a very fine designing machine, which can be described as a sort of vertical Meccanograph, that he has planned and built, and I hope to include an illustration and account of this in the *M.M.* in due course.

He has also had a fine little stroke of fancy, and has produced what he calls a Weather Prophet, in which Meccano plays a part. It is illustrated on this page and I am sure that many readers will find it interesting to build and it will provide quite a bit of fun.

The model is really quite simple. It consists of a simple Meccano stand made from Strips, mounted on a base consisting of a Flanged Plate. A disc of cardboard, about $5\frac{1}{2}''$ dia. is cut out and painted to represent the Sun, showing a smiling face when turned one way and a gloomy face when turned the opposite way round. If you turn the picture on this page upside down you will see the idea.

The next requirement is a piece of cardboard cut out to represent clouds. This is fastened with two bolts to the front flange of the Flanged Plate. The Sun disc is mounted on a Rod passed through the Strips of the stand, as you will see from the picture of the model. A Spring Clip is stuck to the centre of the disc with thin paper bands and half an inch below it a $2\frac{1}{2}''$ Strip is fixed to the disc with cellotape or something of that kind so that the Strip, which serves as a counterweight, can be moved slightly forward or backward as desired.

On the back of the Sun disc opposite the Strip, fix a little bag containing dry salt. The weight of the bag and salt should be slightly less than that of the counterweight. The model is now ready for use.

When the apparatus is correctly adjusted wet weather will be indicated by the Sun disc turning on its pivot so as to show the "gloomy" face. On the other hand fine and sunny weather will be foretold by the disc turning half way over so that the cheerful and smiling face is shown.

This action in wet weather is due to the absorption of moisture by the salt in the bag, which then becomes heavier and unbalances the pivoted disc, thus causing it to rotate on its pivot. In dry

(Cont. on page 52)

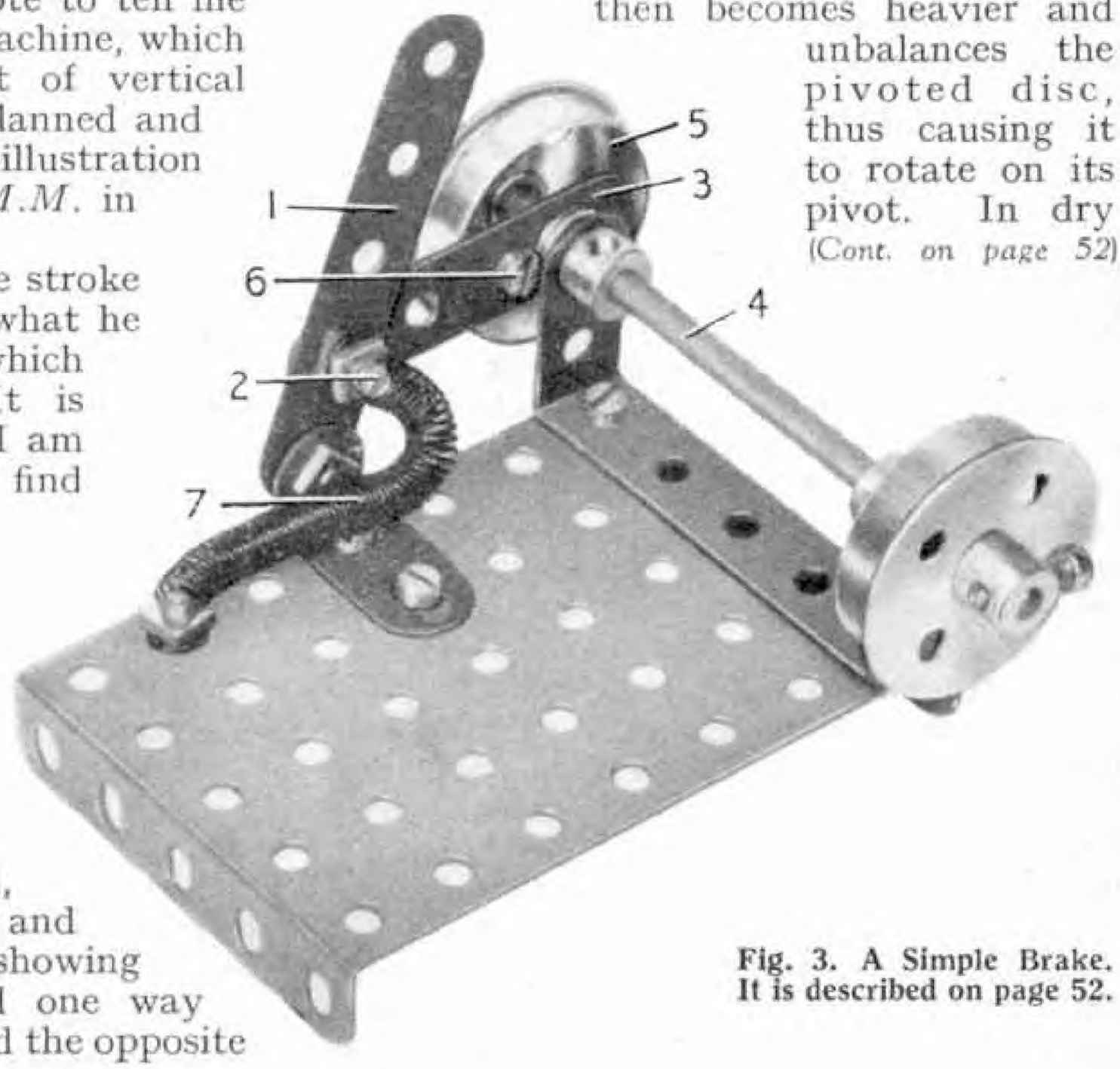


Fig. 3. A Simple Brake. It is described on page 52.

MODEL OF THE MONTH

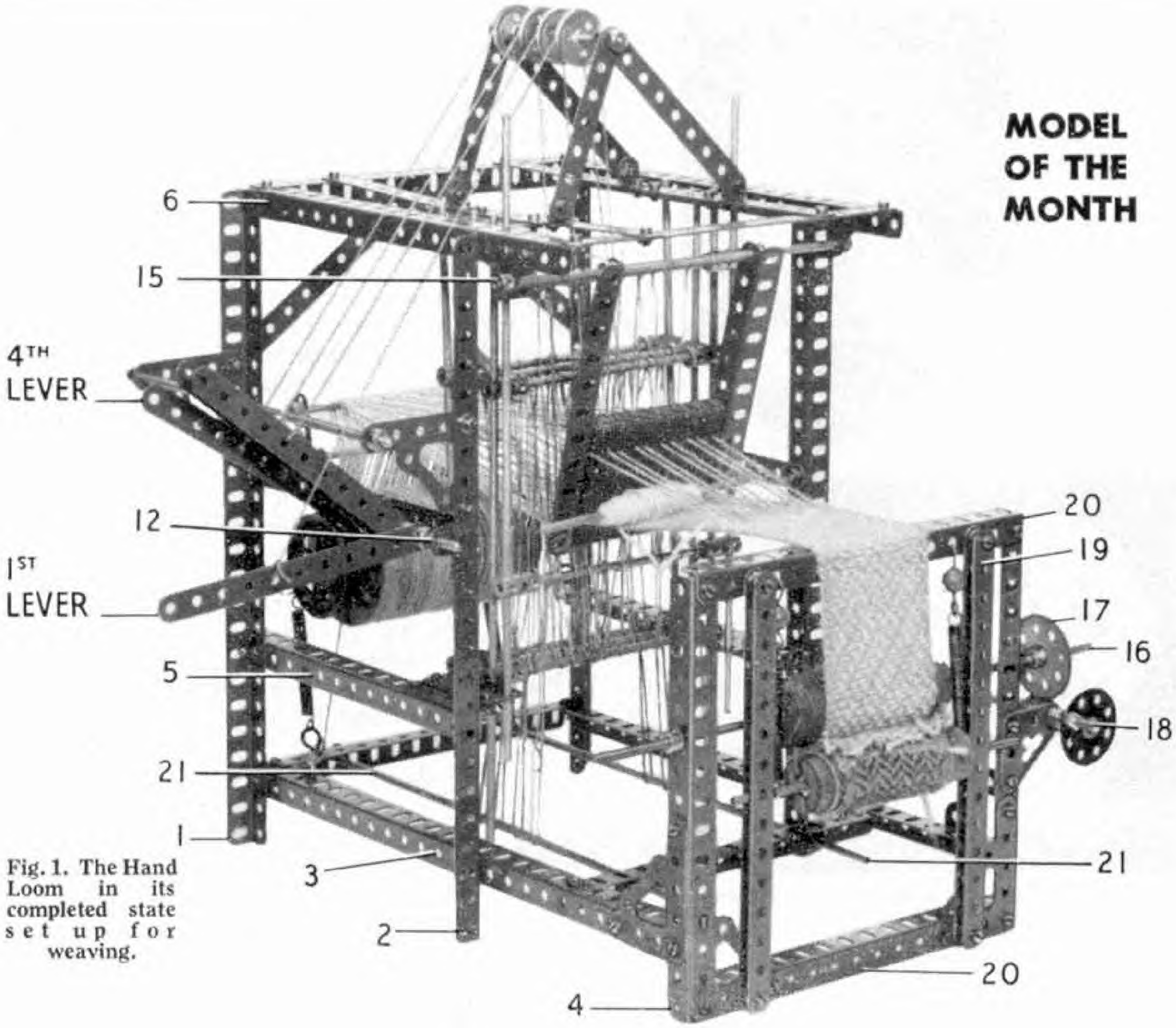


Fig. 1. The Hand Loom in its completed state set up for weaving.

Build this Fine Hand Loom!

ONE of the earliest and greatest triumphs of Meccano was the construction, with standard parts, of looms with which textile materials could actually be made, working on the same principles as the looms of our great cotton and woollen mills. Countless model-builders have built looms for themselves since that first achievement, and throughout the years one builder after another has developed improvements and additions, including the installation of motors, that have increased the scope and variety of this particular piece of textile machinery in Meccano, and others have been added. Actually in comparatively recent months two special textile machines have been included in the *Model of the Month* series, and the great demand for the building instructions concerning them that followed their appearance was a testimony to the popularity of models of this type.

With this in mind, a similar subject has been taken for the January 1959 Model of the Month, but on this occasion it is a Hand Loom, with which it is possible to weave bands of cloth in a variety of patterns, and it is a model that will test the skill of the builder in both construction and operation. It is therefore particularly suitable for advanced model-builders. The Loom is seen complete in Fig. 1.

The weaving material used in this loom is 2-ply or thin 3-ply wool, which is readily obtainable. The model is entirely hand operated, and although weaving with it is rather a slow process, good work can be produced with careful operation and the model demonstrates the principles of simple cloth weaving excellently.

The Hand Loom has four heald frames, each of which is controlled by a separate lever. Variations in the weaving pattern are produced by operating these levers in different combinations and sequences.

As usual, full constructional details for building the model are available. To get them, just write to the Editor,

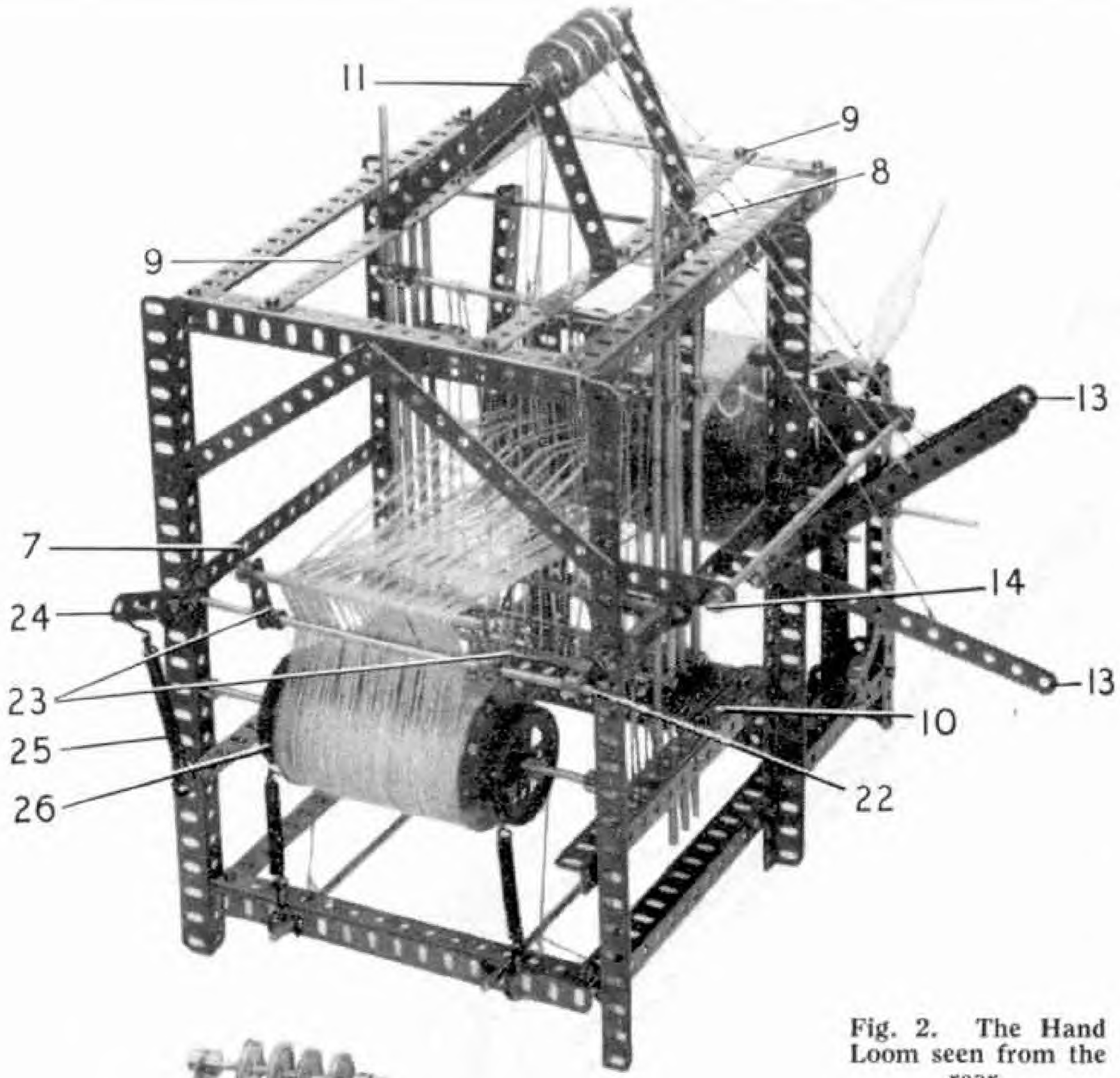
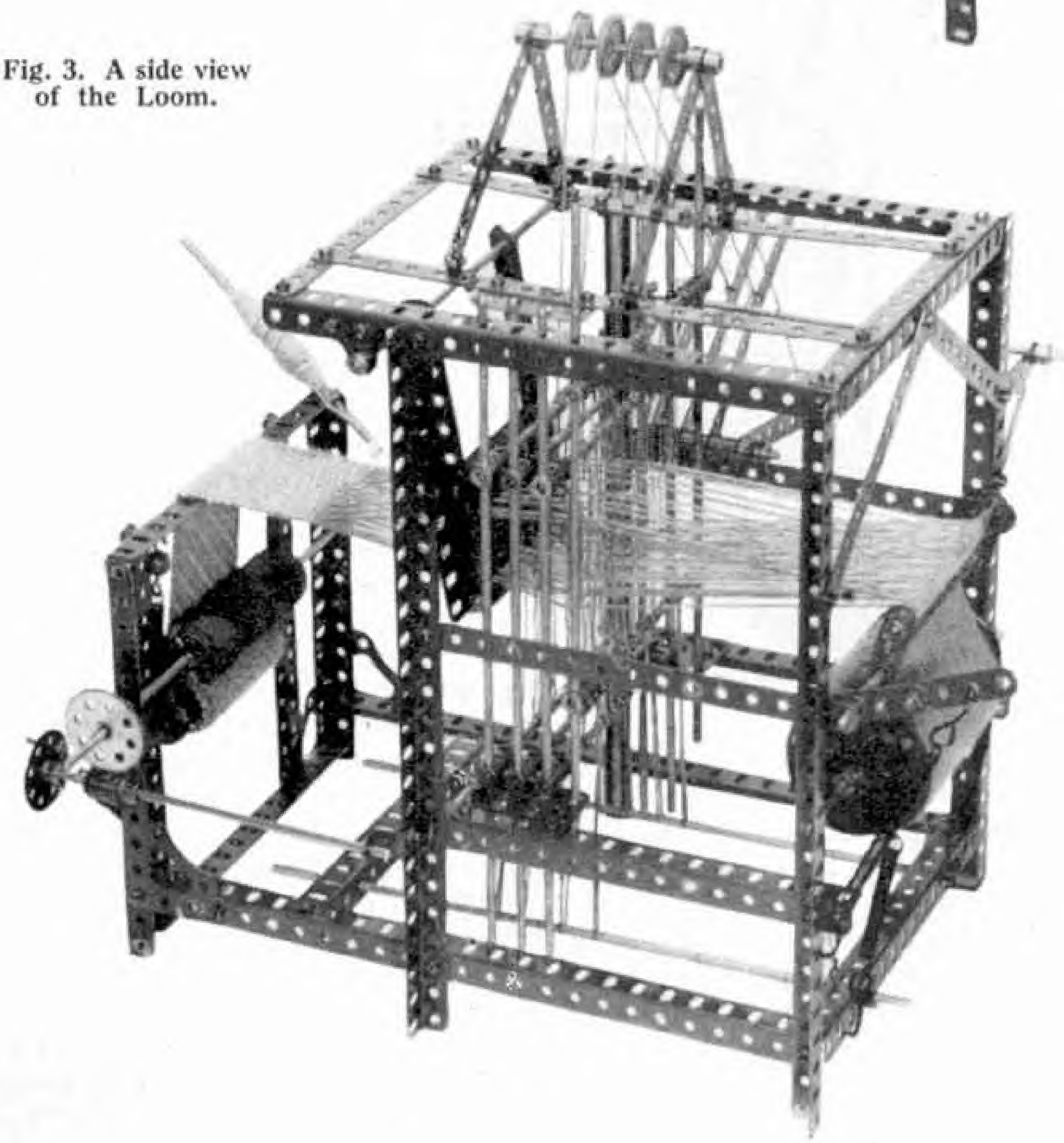


Fig. 2. The Hand Loom seen from the rear.

Fig. 3. A side view of the Loom.



Meccano Magazine, Binns Road, Liverpool 13, enclosing a 2d. stamp. Readers living in Canada, Australia, New Zealand, South Africa, Ceylon, Italy, Rhodesia and the United States of America should write to our main agents in those countries for their copies of the current Model of the Month instructions, also, of course, enclosing suitable stamps for postage. Write at once and make sure of your copies.

A Model Tower Crane

ALL who have seen a tall modern building under construction will almost certainly know what a tower crane looks like. It has a comparatively small base, running on rails alongside the building site, and consequently it takes up little room. An illustrated description of a tower crane of this type appeared in the *M.M.* for February 1957, and this month here is a simple version of another typical design that can be built with the parts in a No. 5 Outfit.

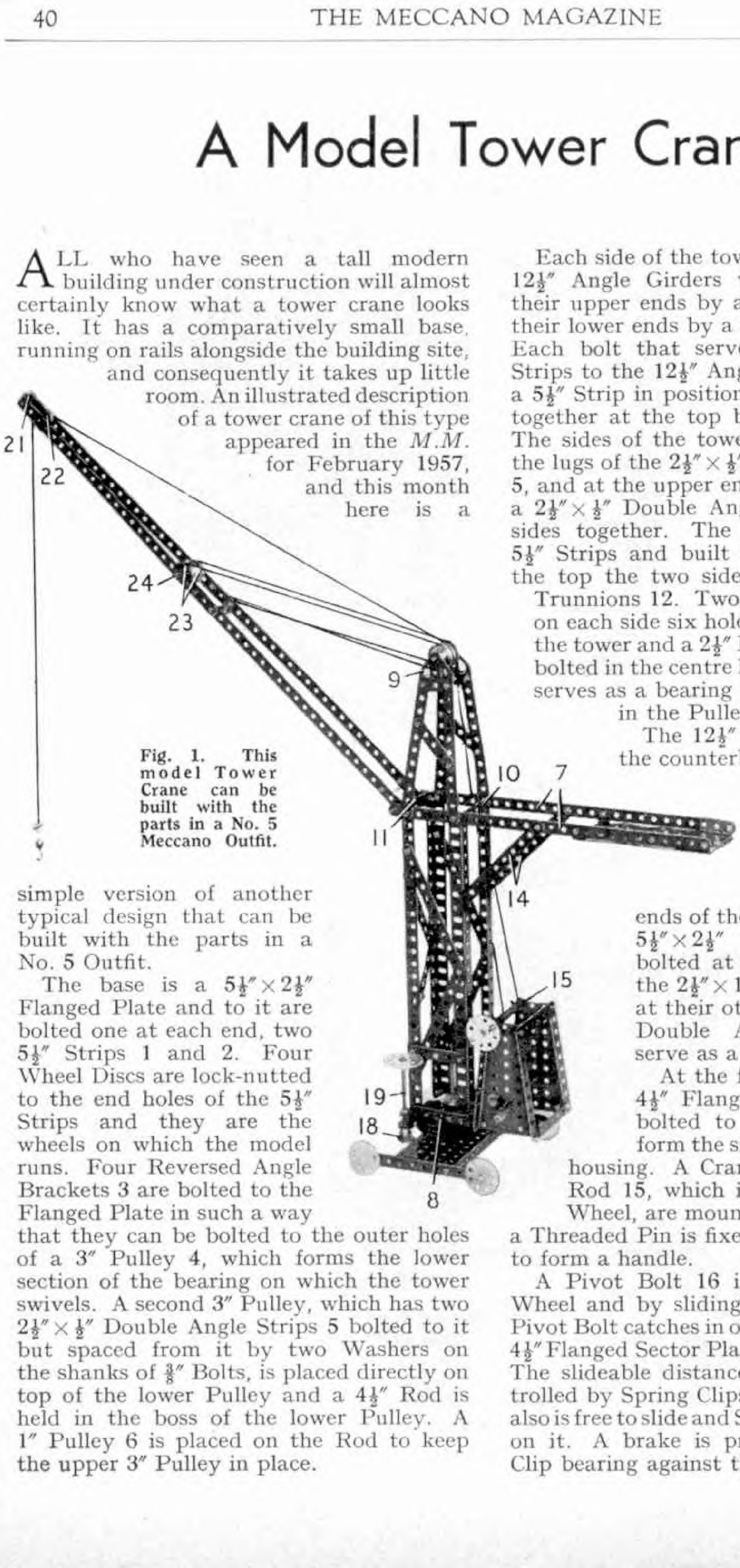


Fig. 1. This model Tower Crane can be built with the parts in a No. 5 Meccano Outfit.

The base is a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate and to it are bolted one at each end, two $5\frac{1}{2}''$ Strips 1 and 2. Four Wheel Discs are lock-nutted to the end holes of the $5\frac{1}{2}''$ Strips and they are the wheels on which the model runs. Four Reversed Angle Brackets 3 are bolted to the Flanged Plate in such a way that they can be bolted to the outer holes of a 3" Pulley 4, which forms the lower section of the bearing on which the tower swivels. A second 3" Pulley, which has two $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips 5 bolted to it but spaced from it by two Washers on the shanks of $\frac{3}{8}''$ Bolts, is placed directly on top of the lower Pulley and a $4\frac{1}{2}''$ Rod is held in the boss of the lower Pulley. A 1" Pulley 6 is placed on the Rod to keep the upper 3" Pulley in place.

Each side of the tower is made up of two $12\frac{1}{2}''$ Angle Girders which are joined at their upper ends by a $12\frac{1}{2}''$ Strip 7 and at their lower ends by a $5\frac{1}{2}''$ Strip 8 as shown. Each bolt that serves to hold the $12\frac{1}{2}''$ Strips to the $12\frac{1}{2}''$ Angle Girders holds also a $5\frac{1}{2}''$ Strip in position and they are joined together at the top by Flat Trunnions 9. The sides of the tower are then bolted to the lugs of the $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips 5, and at the upper ends a $2\frac{1}{2}''$ Strip 10 and a $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip 11 join the sides together. The tower is braced by $5\frac{1}{2}''$ Strips and built up $4\frac{1}{2}''$ strips. Near the top the two sides are joined by two Trunnions 12. Two $2\frac{1}{2}''$ Strips are bolted on each side six holes from the bottom of the tower and a $2\frac{1}{2}''$ Double Angle Strip 13 bolted in the centre holes of the $2\frac{1}{2}''$ Strips, serves as a bearing for the $4\frac{1}{2}''$ Rod fixed in the Pulley 4.

The $12\frac{1}{2}''$ Strips 7, which form the counterbalance structure, are supported by two $5\frac{1}{2}''$ Strips 14. A $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flanged Plate is bolted through its flanges to the ends of the $12\frac{1}{2}''$ Strips and four $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plates are bolted at one of their ends to the $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flanged Plate and at their other ends to a $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip. These serve as a counterbalance.

At the foot of the tower two $4\frac{1}{2}''$ Flanged Sector Plates are bolted to the $5\frac{1}{2}''$ Strips 8 to form the sides of the mechanism housing. A Crank Handle and a $4\frac{1}{2}''$ Rod 15, which is fitted with a Bush Wheel, are mounted in the Plates and a Threaded Pin is fixed to the Bush Wheel to form a handle.

A Pivot Bolt 16 is fixed to the Bush Wheel and by sliding the $4\frac{1}{2}''$ Rod 15 the Pivot Bolt catches in one of the flanges of the $4\frac{1}{2}''$ Flanged Sector Plates and acts as a brake. The slideable distance of the Rod is controlled by Spring Clips. The Crank Handle also is free to slide and Spring Clips are placed on it. A brake is provided by a Spring Clip bearing against the Angle Bracket 17,

which is bolted to the Flanged Sector Plate.

The tower is rotated on the base by means of a belt of Cord which passes around the lower 3″ Pulley 4 and a Pinion 18 that is fixed by nuts between two ¾″ Washers on a 3½″ Screwed Rod 19. The Screwed Rod is mounted in a Stepped Bent Strip and is held in place by lock-nuts 20. A 57-Tooth Gear is locked on the Screwed Rod to form a hand wheel.

The jib consists of two pairs of 12½″ Strips separated from each other at the inner end by a 1½″ × ½″ Double Angle Strip and by a Double Bracket 21 at the outer end. The jib pivots on a 3½″ Rod that is journalled in the lugs of the 2½″ × ½″ Double Angle Strip 11. A 1″ loose Pulley 22 at the jib head is mounted on a 1½″ Rod and two 1″ Pulleys 23 are free on a 2″ Rod 24. A 2″ Rod is journalled in the Flat Trunnions 9 at the top of the tower and it carries three further 1″ Pulleys 25. A piece of Cord is tied to a Cord Anchoring Spring on the 4½″ Rod 15 and then taken over one of the outer Pulleys 25 and the 1″ Pulley 22 at the jib head. A Loaded Hook is fastened to the end of the Cord and a ½″ loose Pulley, which is threaded on the Cord, forms an additional weight.

A second length of Cord is wound around the Crank Handle and passed over the centre Pulley 25 round one of the Pulleys 23, then over the remaining Pulley 25 and the other Pulley 23, and finally is tied to the top of the tower.

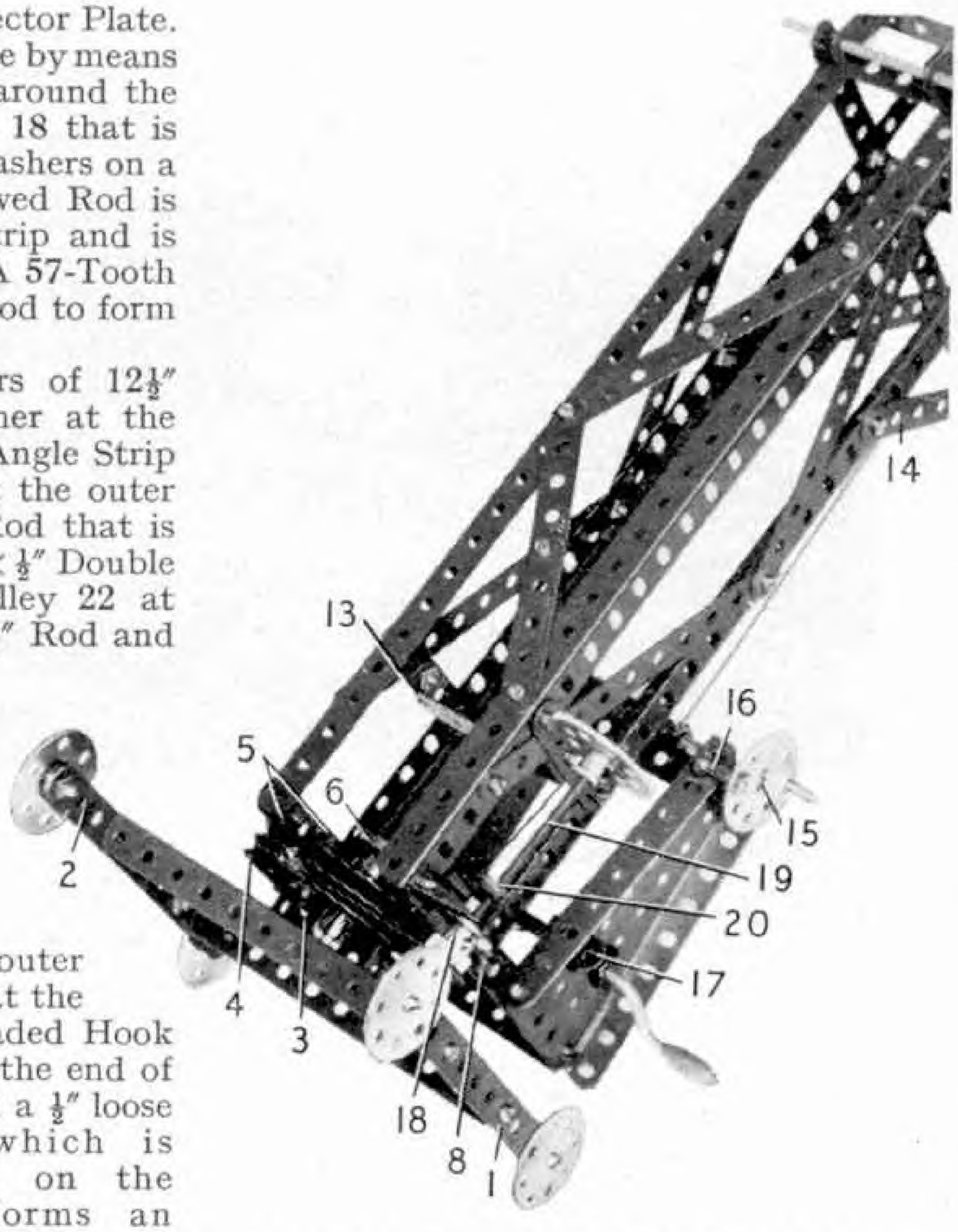


Fig. 3. This view shows the details of the lower part of the tower and the base.

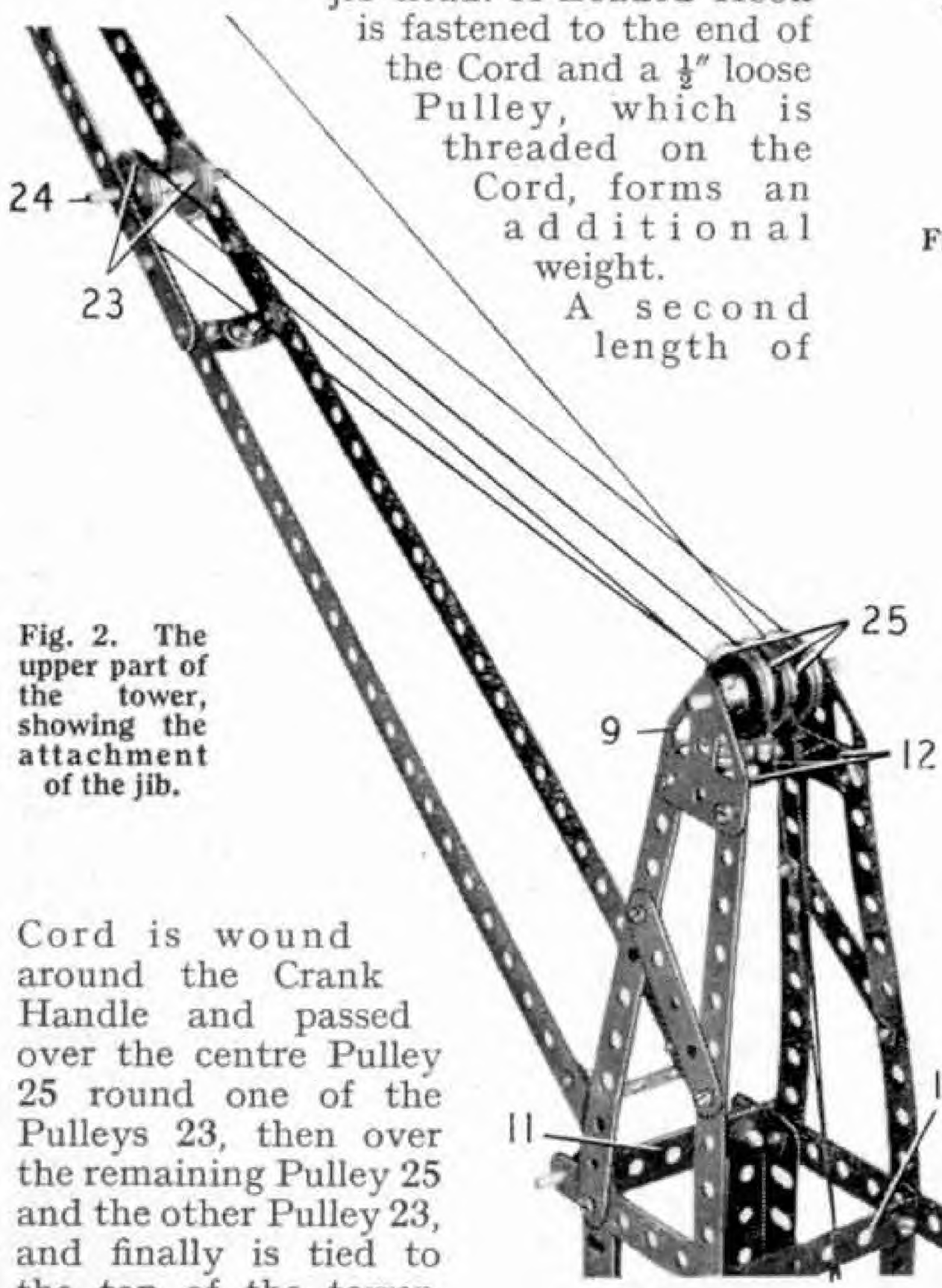
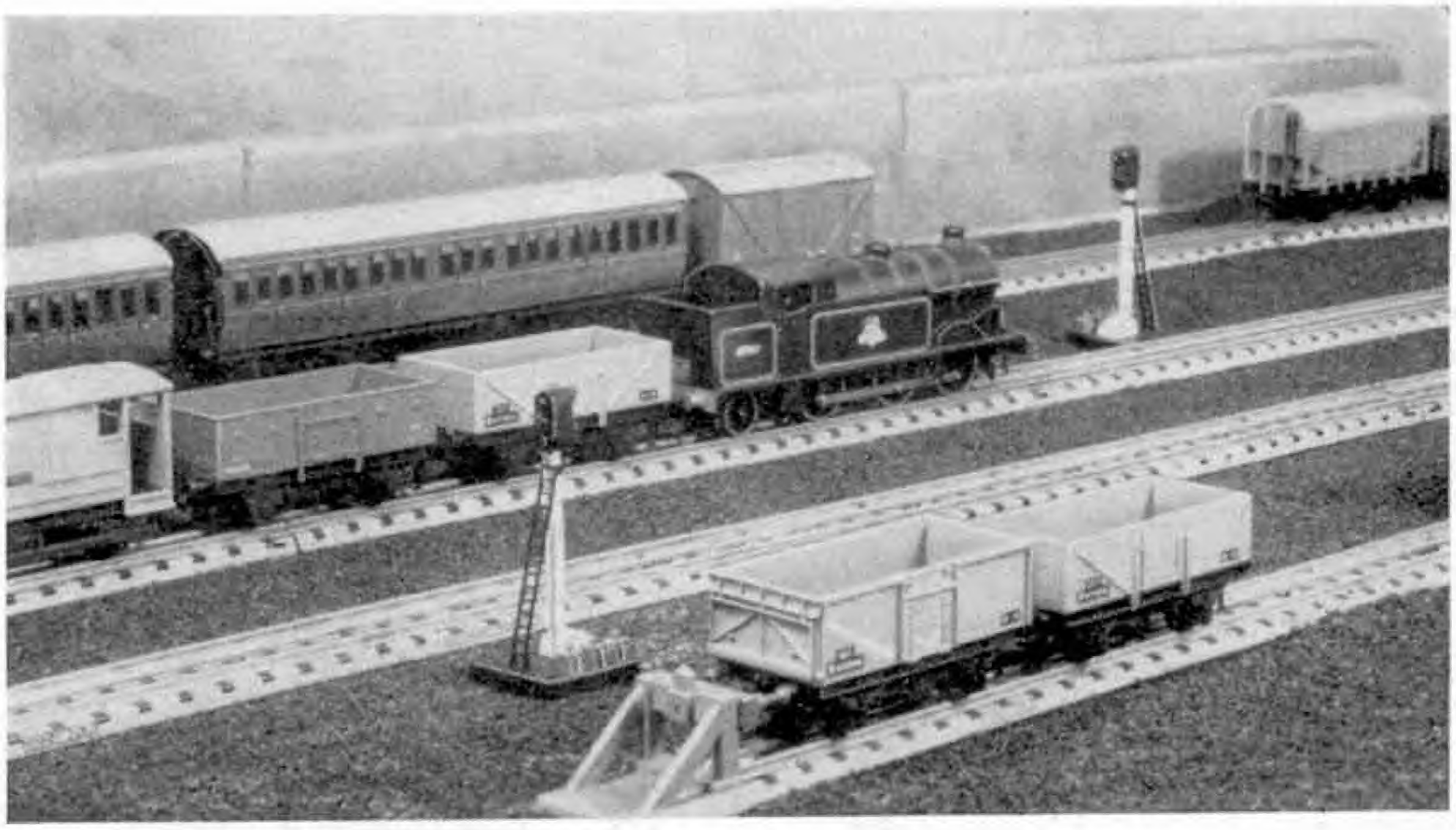


Fig. 2. The upper part of the tower, showing the attachment of the jib.

Parts required to build the Tower Crane: 6 of No. 1; 14 of No. 2; 1 of No. 3; 9 of No. 5; 4 of No. 8; 1 of No. 10; 1 of No. 11; 3 of No. 12; 1 of No. 15a; 1 of No. 15b; 1 of No. 16; 2 of No. 17; 1 of No. 18a; 1 of No. 19g; 2 of No. 19b; 5 of No. 22; 2 of No. 22a; 1 of No. 23; 1 of No. 24; 2 of No. 24a; 2 of No. 24c; 1 of No. 26; 1 of No. 27a; 9 of No. 35; 97 of No. 37a; 82 of No. 37b; 9 of No. 38; 2 of No. 38d; 1 of No. 40; 1 of No. 44; 1 of No. 48; 6 of No. 48a; 1 of No. 51; 1 of No. 52; 2 of No. 54; 1 of No. 57c; 1 of No. 80c; 6 of No. 111c; 1 of No. 115; 4 of No. 125; 2 of No. 126; 2 of No. 126a; 1 of No. 147b; 1 of No. 176; 4 of No. 192.



HORNBY RAILWAY COMPANY

Now Our First Diesel

By the Secretary

NOW it is time for me to talk about the Hornby - Dublo Diesel - Electric Locomotive, which I mentioned just briefly last month. You can see from our advertisement pages how good the engine looks and those of you who have already been fortunate enough to obtain one will no doubt agree that it is a first class job, not only in its general appearance, but also in its capabilities in service. In a later talk, with some pictures of it in action, I shall deal with the running of the engine and the work that it can do, but for the present, because of its special interest as the first diesel in Hornby-Dublo, I am concentrating on the general features of this fine new addition to the System.

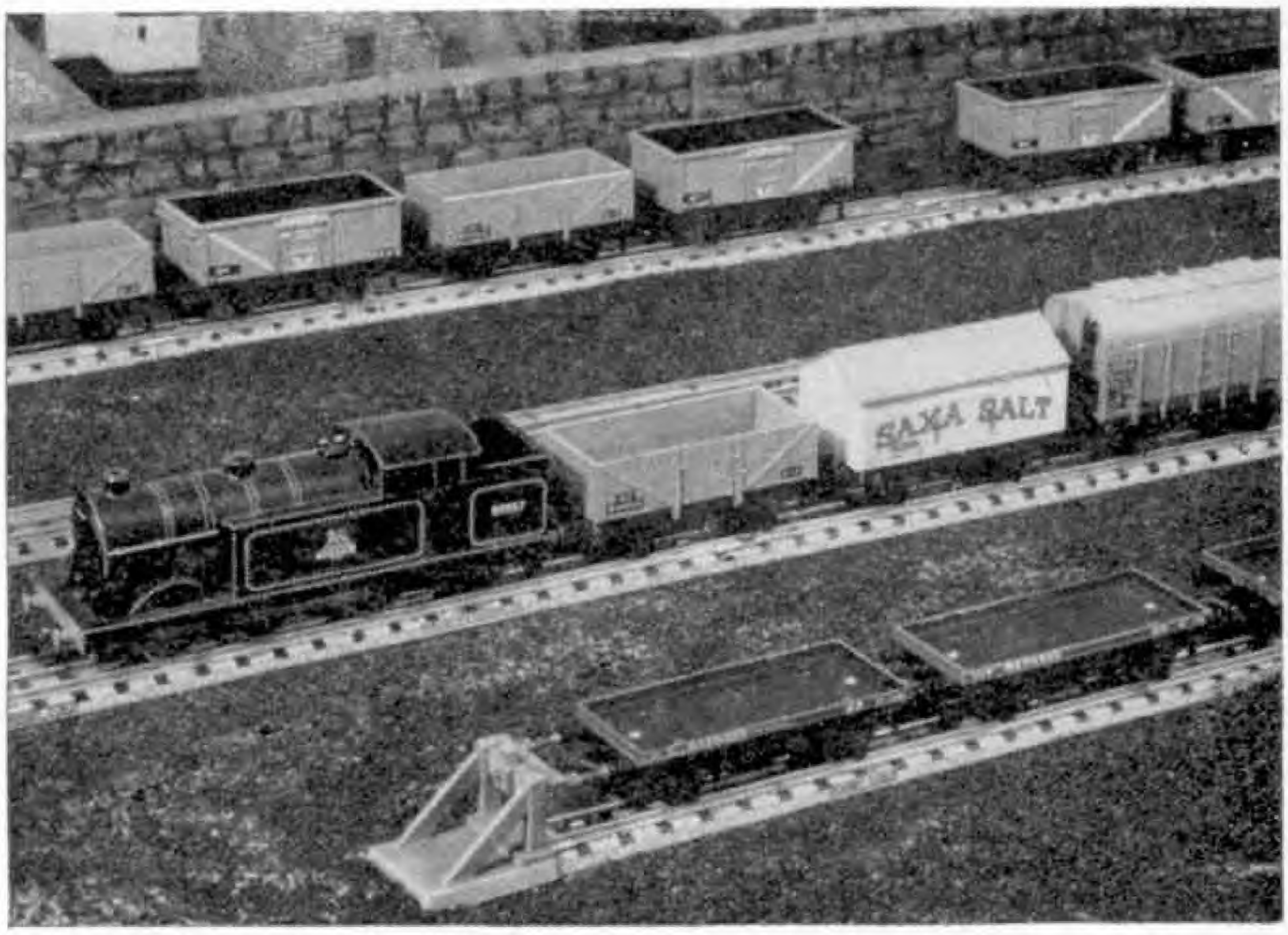
Hornby-Dublo Colour Light Signals have been installed on the section of railway illustrated above. Obviously this is a busy area in which the use of such Signals is specially valuable.

For quite a long time now *M.M.* readers and Hornby-Dublo enthusiasts everywhere have been pressing for a diesel-electric locomotive to be represented in the System. While there have been various prototype locomotives in service for quite some time, and many diesel shunters, there was not a B.R. Standard class of diesel-electrics for general road work until the appearance of the first engine the class represented, No. D8000, about the middle of 1957. So obviously this Bo-Bo, or in other words a double-bogie eight-wheeler, was the engine to reproduce in Hornby-Dublo.

A great deal of thought, careful design and experimental work lies behind the introduction of this fine new Hornby-Dublo Locomotive. Although in the real thing each of the two axles in each bogie is a driving axle, it has not been necessary to reproduce this feature in full in the model. One of the bogies is a power bogie, but the other, although of similar appearance externally, is not.

The motor unit is very compact and is mounted on the bogie at the cab end which, by the way, is the rear end of the engine. The design of the motor is so arranged that the armature shaft carries a worm at each end. Each worm drives a skew gear, one to each of the power bogie axles. This means that there is adequate power available for moving any reasonable load and the small size of the driven wheels results in a realistic scale speed. One pair of the wheels in the power bogie has rubber tyres to ensure good adhesion.

Although the bogies are of the usual Hornby-Dublo die-cast construction, with excellent detail, the bodywork strikes a completely new note, as it is of moulded



One of the most recent SD6 introductions, the Saxa Salt Wagon, appears in this train. Its general shape and style make a striking contrast to the other vehicles in the range.

form. From your acquaintance with the moulded SD6 Goods Vehicles you will not need telling that the details reproduced in the new model are complete and of really fine character. The cab extends across the full width of the underframe, but what I may term the "bonnet" section, which in the real thing accommodates the diesel engine, generator and much auxiliary equipment, is narrower than the cab. Unlike the steam locomotive, whose parts and their purpose are easy to see, a diesel has its motive units hidden from view.

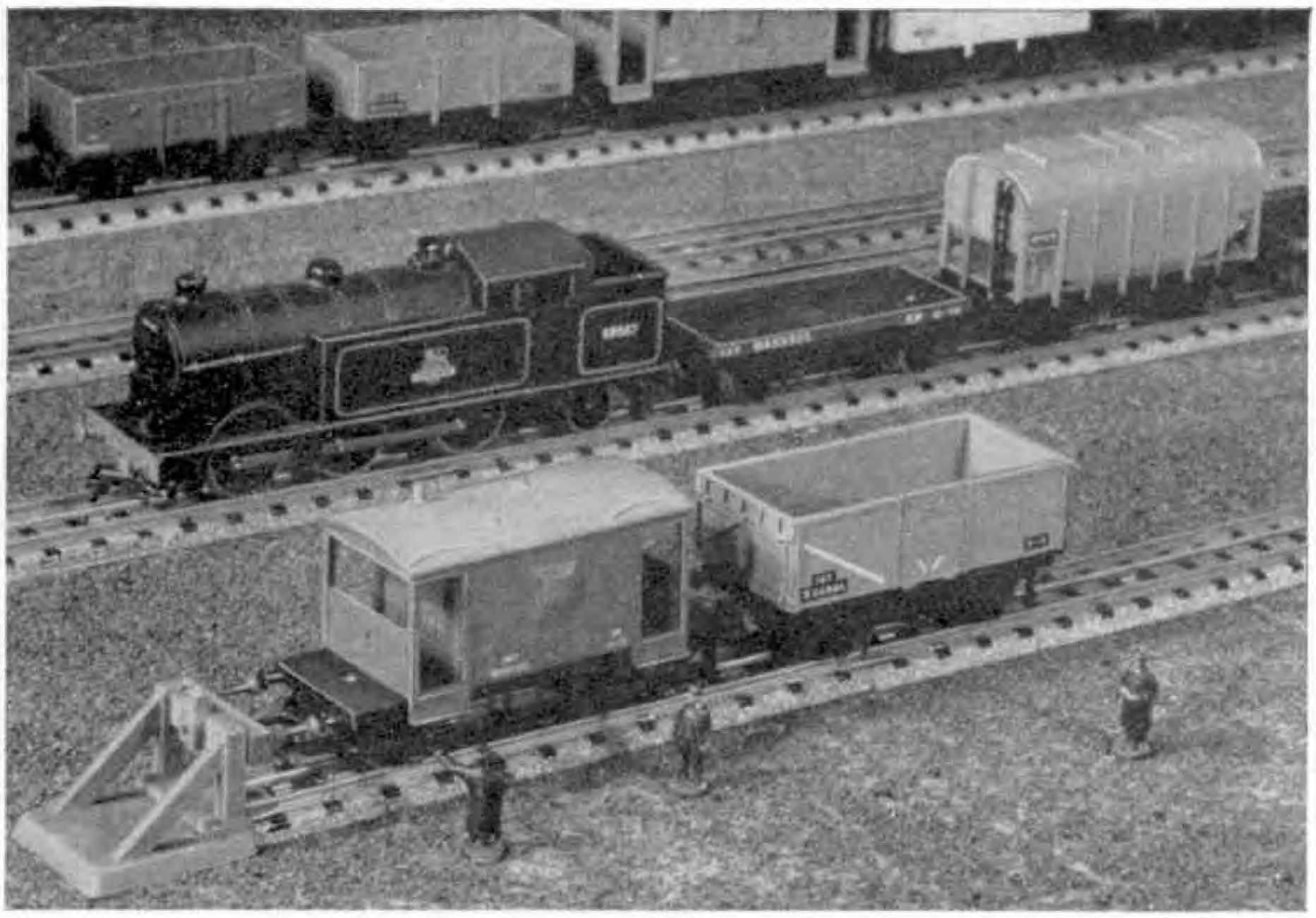
But the exterior of a diesel provides plenty of opportunity of incorporating numerous and exciting small details, and the fullest advantage has been taken of this. Air intakes, ventilating louvres, inspection doors, all incorporated in the Hornby-Dublo Diesel-Electric Locomotive, are just a few examples. Then there are such things as the ladder for getting to the "roof" of the bonnet, where such features as the big circular grid of the fan and the hatches giving access to the upper parts of the engine are prominent. Among various other pleasing effects are the handrails on the bonnet and, at each end of the engine, the modelling of the headlamps and their shutters, and the glazing in the cab windows.

Details "below deck" are no less pleasing, for the bogies, which represent the equalising bar type found on the full-size locomotive, show these bars, dummy axleboxes, and springs, brake cylinders, sandboxes and so on.

There is a tremendous response to the introduction of this new Locomotive in the Hornby-Dublo System and I am sure that an L30 Diesel-Electric will find its way into the locomotive depots of most Hornby-Dublo railways. There will be plenty of useful work for it to do. The real engines of the class are employed on varied duties, so there will be numerous operating schemes that can be developed to take the fullest advantage of the generally handy and compact character of the engine. Its length, over couplings, 7¾ in., means that it does not take up much space in yards and sidings, which is a useful point on any layout.



Hornby-Dublo No. 7013 "Bristol Castle" is waiting in the engine yard ready for its next turn of duty. The Water Crane adds to the effect of this simple scene.



The SD6 B.R. Standard Goods Brake Van that becomes available this month is prominent in the foreground of this picture. A Hornby-Dublo 0–6–2T is passing with a local goods train.

A New Brake Van for Fast Freights

ADDITIONS to the SD6 range of Hornby-Dublo Goods vehicles with moulded bodywork continue to appear and details of last month's models have already appeared in the *M.M.* This month there is another welcome newcomer in the shape of the SD6 Goods Brake Van of B.R. Standard type. This will delight all Hornby-Dublo enthusiasts, but particularly the many who have asked for companions for the Western and London Midland Goods Brake Vans in this series.

In providing a new SD6 Brake Van to replace the former Hornby-Dublo D1 Goods Brake of E.R. type, the opportunity has been taken to represent the B.R. Standard type, a vehicle of similar style, and in real practice one that has been developed from the earlier L.N.E.R. type of goods brake.

You can see from the picture above how splendidly the characteristic appearance of the B.R. Standard 20-ton goods brake van has been captured in the model. Needless to say the vertical boarding that is characteristic of the original is reproduced in a very pleasing manner on the sides and ends of the Van. The raised look-outs, or "duckets", for the guard are modelled correctly and their inclusion in this form illustrates one of the great advantages of the moulded type of body.

As it represents a B.R. Standard vehicle the number carried at one end of each side of the Van is *B950350*, balanced by the tare weight figures *19-13*, at the opposite end. As usual, the nominal tonnage is shown as *20T* and since the Van represents a vacuum brake fitted vehicle, in accordance with the most recent B.R. practice, it is coloured in the bauxite finish that distinguishes such stock and the indication *XP* appears on each side above the tare weight figures.

Thus those Hornby-Dublo owners have been waiting for a Goods Brake that they can use correctly on their trains representing fully fitted services now have a fine vehicle for this purpose. There is little doubt that progress on Hornby-Dublo railways in the running of fast freight services will run parallel to the current developments on British Railways, on which 756 such trains are run every day.

The freight traffic operating side of Hornby-Dublo practice is now well provided for in the matter of rolling stock and suitable Locomotives and Goods Brakes. The 0–6–2T and 2–6–4T have long been popular for the more local goods workings, but the introduction some months ago of

the fine L.M.R. 8F 2–8–0 Locomotive has provided just the engine for a wide variety of longer-distance freight duties. Not only can the slower-moving coal and general goods trains be taken by it, but it can also be used for certain classes of express freight trains. Some of the real engines of the class, with suitable balancing arrangements, can work fast freights of what are known as Class D; that is with one-third of the vehicles composing it vacuum brake fitted, and with a maximum operating speed of 50 m.p.h.

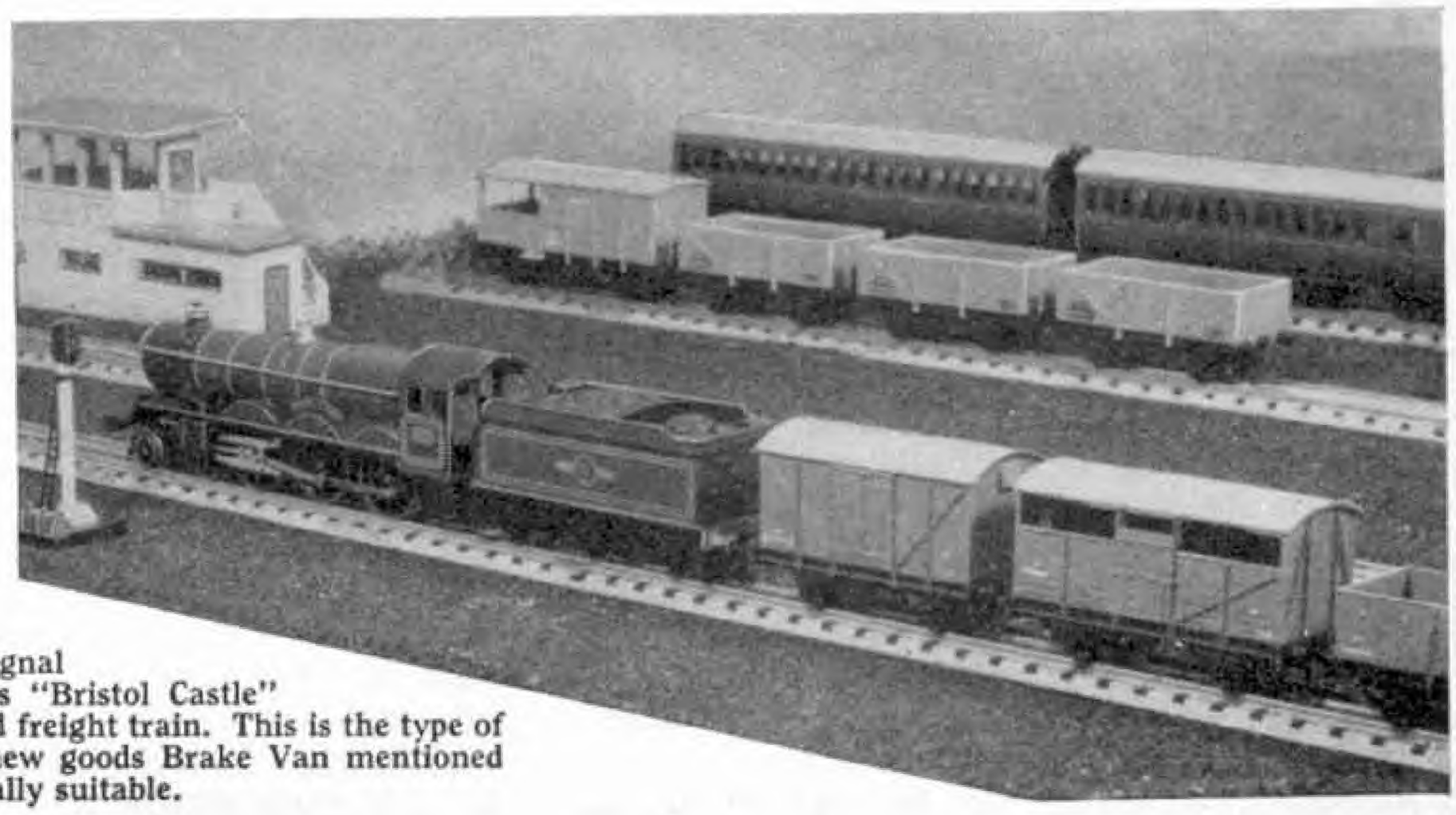


Here the Hornby-Dublo L.M.R. 8F 2–8–0 is ready for departure. One of the figures on the ground is evidently passing the guard's signal to the driver.

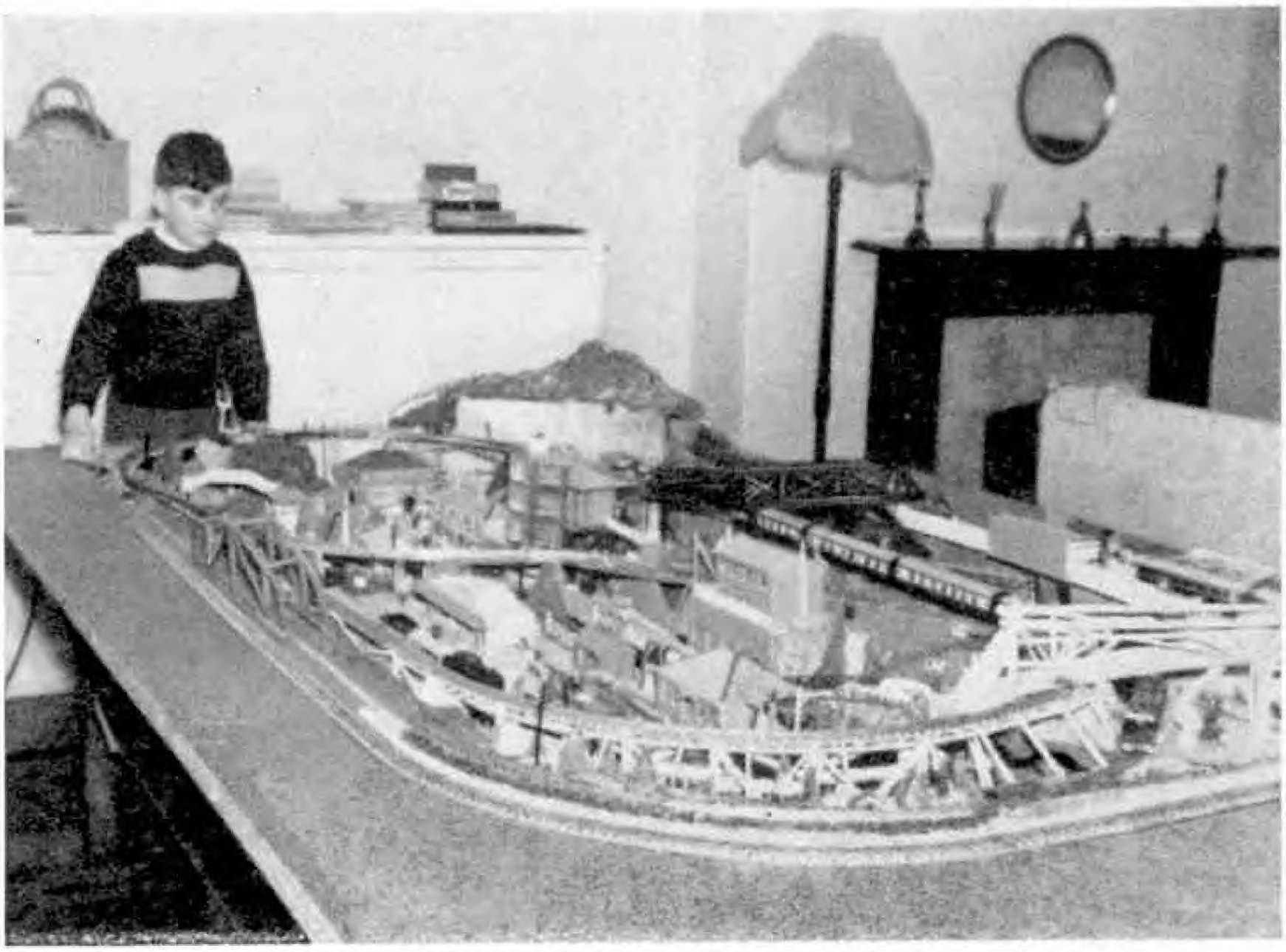
Although the real engines that are suitable for this kind of work carry special markings there is no reason why we should not consider that our Hornby-Dublo 2–8–0 can be used in this way, although it is not distinguished by the special "star" that is carried by the real engines referred to. Apart from engines and goods brakes, there is now a fine selection of SD6 and other Hornby-Dublo goods vehicles representing brake fitted stock so that plenty of activity in this direction is now possible.

Keeping pace with modern developments, the Colour Light Signals of the Hornby-Dublo range already referred to in these pages have met with a fine welcome from Hornby-Dublo owners. In addition to the single-head Colour Light Signals that appeared first, there is a twin-head Colour Light Junction Signal now available and no doubt many of you have already installed at least one of these on your layouts.

A point to note regarding the Colour Light Signals is that the specially designed G3 Switch is essential for working them. The older D1 and D2 Switches will *not* do for this purpose. Therefore it is not possible to wire up the Colour Lights to the same switch as the Electrically Operated Points so that they work together, as can be done with the semaphore type of Electrically-Operated Signals. But, as you know, all three types of Hornby-Dublo Switches D1, D2 and G3, have outer casings of similar style that can readily be "banked" together to form a lever frame by means of Switch Grouping Rods. The different colours of the various Switch casings provide a ready means of identification and are a great help to the operator on large or small layouts.



The Colour Light Signal shows "line clear" as "Bristol Castle" hurries past on a fitted freight train. This is the type of train for which the new goods Brake Van mentioned in this article is specially suitable.



Granville Smith, of Sutton-in-Ashfield, with his Hornby-Dublo layout. The raised section of railway in the foreground is built up on a trestle-type framework.

A Bridge and Trestle Line

By "Layout Man"

FROM time to time these pages have shown layouts with parts of the track carried on a high level section and including the Hornby-Dublo Girder Bridge or other structures. Of course there are limits to what can be done in this direction, particularly when the high level and the lower level routes are to be connected and to cross one another. When this is so, a baseboard at least 8 ft. by 4 ft. 6 in. is wanted. For this reason such connections are not always incorporated, but a permanent high level section on its own has been incorporated on one or two layouts I have seen. An example of each kind of layout is included in the booklet *Hornby-Dublo Rail Layouts*.

I expect that some of you will recall previous articles on this subject in the *M.M.* and probably many of you have put into practice one or other of the schemes that have been dealt with. I have returned to this now because of the interest shown in it by many readers.

The layout picture on this page, which is that of Hornby-Dublo enthusiast Granville Smith, of Sutton-in-Ashfield, is an example of a track with raised sections that may suggest similar schemes to others. There are various ways of providing the necessary support for the raised track. That of Granville Smith is to place blocks at intervals to carry the separate base on which the raised track is laid. The blocks have to be carefully sawn so that the angles of their top surfaces are just right for the inclined sections of track—they will of course have to be exactly level for the rest of the raised layout. In addition, on Granville Smith's layout there are various sections of trestle-like construction to support the track and the general effect of these is quite pleasing. The railway is in effect "propped up" in a satisfactory manner, with supports moreover that do not themselves occupy a great deal of space on the main baseboard.

If some of you find difficulty in arranging things of this kind, you can buy ready-made blocks designed to give the formation wanted. They may not incorporate the actual base for your track where it passes over the piers, but this is not really difficult to arrange.

Just one more point. It is best not to have gradients on curves, but layout restrictions often make it impossible to observe this rule. In any case, remember that no steeper slope than 1 in 30 should be used, and even this means restricted loads, particularly where curved sections have to be negotiated.

Club and Branch News

WITH THE SECRETARY

A HAPPY NEW YEAR

This to every member of the Guild and H.R.C. The year just ended was one of good progress, with an excellent number of new Clubs and Branches attaining official status. It is becoming increasingly common for new organisations to register simultaneously as Meccano Clubs and H.R.C. Branches, the majority of their members taking an active part in both hobbies but the two "sides" of the organisation functioning as self-contained units. They should not, of course, because the two sides can be so helpful to each other.

The idea is not new, and one instance that immediately comes to mind of this "dual personality" having been maintained successfully for years past is that of the Mile End Club and Branch at Portsmouth, whose regular and detailed reports are a feature of this page.

MECCANO CLUB RECENTLY AFFILIATED

GINDIRI SECONDARY SCHOOL (NORTHERN NIGERIA) M.C.—*Leader:* Mr. P. F. Bradford, Sudan United Mission, Gindiri, P.O. Barakin Ladi, Via Jos, Northern Nigeria.

H.R.C. BRANCH RECENTLY INCORPORATED

No. 572. GINDIRI SECONDARY SCHOOL (NORTHERN NIGERIA) —*Chairman:* Mr. P. F. Bradford, Sudan United Mission, Gindiri, P.O. Barakin Ladi, Via Jos, Northern Nigeria.



Mr. M. N. Radhakrishna, Secretary of the Mysore M.C. This very successful Indian Club was affiliated with the Guild in July 1953, and Mr. Radhakrishna has been actively associated with it since its formation. The Club is well-known locally for its outstanding Exhibitions.

CLUB NOTES

BORDEN GRAMMAR SCHOOL (SITTINGBOURNE) M.C.—The membership continues to increase and now stands at the highest figure for some years. The subscription for each member is 3/- a term, and this enables the Club to be self-supporting, a fact of which it is proud. Work is still progressing on the Club railway, for which two baseboards have been completed, except for wiring, and a third is under construction. *Secretary:* B. Sedge, 19 Cavour Road, Sheerness, Kent.

PENWORTHAM COUNTY SECONDARY SCHOOL (PRESTON) M.C.—At the time of writing members were busy preparing for their first Christmas Exhibition, devising new models or enlarging those built from Meccano Instructions Books. *Secretary:* H. Fitzell, Tuson's Farm, Longton, Nr. Preston.

HORNSEA M.C.—The first Winter Session opened with a film show. Meccano model-building continues to be popular, and meetings devoted to this activity are conducted by Robin Taylor, a past member who is an expert model-builder. *Leader:* Mr. R. W. Shooter, 84 Cliff Road, Hornsea, E. Yorks.

NEWTOWN SCHOOL (WATERFORD) M.C.—Much model-building activity during the first Winter Session centred around an Exhibition held during Hallow'een weekend, which was a great success. Members had a free choice of subject, and every member built at least one model. The subjects chosen included various types of cranes, a windmill, racing cars and simplicity models. *Secretary:* J. Gillespie, Newtown School, Waterford, Eire.

AUSTRALIA

MAYLANDS M.C.—In September last the Club took part in Western Australia's first Hobbies Exhibition, organised by the Scientific Model, Hobbies and Craft Council, of which the Maylands M.C. is a foundation member. The Exhibition was opened by the Lord Mayor of Perth, and during the week it was held it was visited by over 14,000 people. The Club display was much admired. *Secretary:* T. Dawn, 16 Kennedy Street, Maylands, W. Australia.

SOUTH AFRICA

CAPE PENINSULA (CAPE TOWN) M.C.—The father of a member has presented a fine Cup to the Club, to be awarded in the Annual Group Competition. *Secretary:* T. Venn, Ranfurly, Roodebloem Road, University Estate, Cape Town, South Africa.

BRANCH NEWS

PENWORTHAM COUNTY SECONDARY SCHOOL (PRESTON)—Each member in turn is bringing a simple Hornby-Dublo layout to the meeting, and interesting operations are carried out on it. *Secretary:* R. Catterall, 7 Higher Croft, Penwortham, Preston.

POTTERS BAR — Various lineside models are being constructed for the Branch layout. The new Hornby-Dublo nameboards have been used on the engines, with pleasing effect. The *Duchess of Atholl* engine has had smoke deflectors attached and is shortly to have B.R. numbers, bringing it up-to-date with its prototype. *Secretary:* R. Woods, 120 The Walk, Potters Bar.

NEWPORT (I.o.W.) C. OF E. JUNIOR SCHOOL.—The Branch organised an exhibition at the Autumn Fair, with great success. The Branch layout has been extended to a fifth station, which has been named *Storchester*. *Secretary:* R. B. Clark, 20 West Street, Newport, Isle of Wight.

MILE END (PORTSMOUTH).—Some more "0" gauge equipment has been purchased. "Music while you Work" is provided by a radio presented to the Branch. *Secretary:* A. H. Firman, 171 Fratton Road, Portsmouth.

AUSTRALIA

ST. ALBANS AND NORTH PORT RAILWAY (KOGARAH). —Many improvements to the Branch layout are in hand. A new section-switch has been installed at North Port Loop for safer working there, and a start made on the installation of dummy "block-telephone and telegraphic control." *Chairman:* Mr. E. G. Skiller, 101 Chandos Street, Haberfield, N. S. Wales, Australia.

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Stamp Collectors' Corner

By F. E. Metcalfe

HAIL CANADA

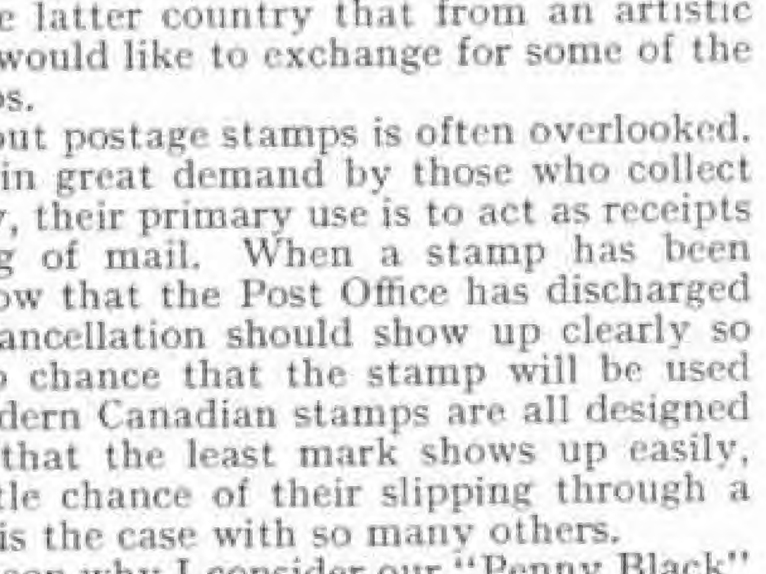
I have received a letter from a friendly French Canadian living in Montreal, who told me to start with that he was a newcomer to the great family of *M.M.* readers, as he only joined us a year ago. He continued that he was writing to try to get me to say a word about the Centennial of British Columbia special stamps.

This I had already done in the July issue, but I am glad that my correspondent did not know this when he wrote. Otherwise I might not have received his interesting letter, which told me that it had been stated officially that stamps in three colours are being considered. We are getting stamps from Ghana in five colours, but I have yet to see any stamps from the latter country that from an artistic point of view I would like to exchange for some of the Canadian stamps.



One point about postage stamps is often overlooked. While they are in great demand by those who collect them as a hobby, their primary use is to act as receipts for the carrying of mail. When a stamp has been cancelled, to show that the Post Office has discharged its debt, that cancellation should show up clearly so that there is no chance that the stamp will be used again. Now modern Canadian stamps are all designed in such a way that the least mark shows up easily, and there is little chance of their slipping through a second time, as is the case with so many others.

This is the reason why I consider our "Penny Black" the worst stamp ever. The poor authorities had a terrible time, during its currency, looking round for all kinds of coloured inks that would show up the cancellation, and that is why you find Penny Blacks listed in Gibbons Part I with blue, magenta, yellow and red obliterations, as well of course as the black, which in many cases did not show up at all. Canada will be wise to stick to its present policy, three colours or not, of producing stamps designed to show up any cancellations that may be applied, no matter how light they may be.



These lines will appear in print when a number are taking up the hobby again. So to collectors looking for a new country to collect I am going to suggest Canadian stamps, not perhaps the early ones, for these are pretty costly and getting more so every day. I received a visit last June from a well known Montreal stamp dealer with whom I discussed the question of stamps as an investment. We both considered Canadians the most promising from this point of view. If there happens to be any rich folk reading these comments who want safe homes for a few thousands, let them go in for early Canadian stamps *in absolutely superb condition*, an injunction that is imperative. They need not worry about paying a bit above the odds, and indeed they will have to do that to get those first choice stamps, for in a few years time, fat returns are more than just likely.



We ordinary folk will have to be content with the modern stamps, and there may be no fat profits for us, but there will be an awful lot of enjoyment, starting as early on as one's pocket will stand for. I would suggest that the average collector begins with the 1937 3c. "Coronation" stamp and works forward, taking mint and used; but if you should decide to collect both, don't mix them. Mount your mint set first, and the used set underneath if you want to work with one album only. Personally I prefer to have my mint stamps in one album and used in another.

The question of condition is very important with Canadian stamps, for quite a few are off centred and cancellations can show up strongly. So first of all see that your mint stamps are well centred, and secondly that your used have light cancellations that do not cover too much of the design.



When it comes to the arrangement of your collection, Canada lends itself to special treatment. When I compiled the Commonwealth Catalogue, I separated the special issues from the ordinary definitive stamps, and once the change was got over, collectors are finding this arrangement very convenient. In the case of the "Health" stamps of New Zealand, I placed these in a section by themselves also, and when I came to consider Canada, I was very much tempted to make separate listings of the Wild Life and Prime Ministers issues. I am rather sorry that I did not do so, because if these particular sets are put all together, and neatly written up, they look much more orderly, and can be referred to more easily. And by the way, better start buying the later issues first, for they are likely to rise more quickly in price than those that have already gone up.

Such a collection as I have mentioned would cover both the KGVI and the QEII reigns. Perhaps this will make a larger collection than one wants to make. If so it could be cut down to the Canadian stamps of the present reign. The first set in such a collection, which is where we begin in the latest Commonwealth QEII Catalogue, depicts the Queen almost full face on. This set was not a great success, and was replaced by one with a better portrait.

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ALLCOCK, 74 Tynyparc Rd., Rhiwbina, CARDIFF

(For other Stamp Advertisements see also pages 48, xx and xxi)

Stamp Gossip

CANADA

Canada's last special stamp for 1958 simply demands inclusion, so here are a few words about the stamp issued on 2nd October to commemorate the Bicentennial of the First House of Representatives in Canada.

The stamp is blue in colour, and we owe the design to Messrs. Carl Dair and Gerald Trottier. The latter artist is well known to us. In explaining the stamp the Canadian Post Office mentions that the first House of Representatives met in Halifax, Nova Scotia, on 2nd October, 1758, and that assembly was the forerunner of representative government in that great North American country.



Attention is drawn to the mace and the Speaker's chair, the two most popular symbols in Canada's parliamentary system, as in that of Great Britain. These are the kind of things we have taught the world to cherish, as do we, and the things that will be remembered for centuries.

ATLANTIC CABLE

There are many collectors in Britain who take modern American stamps and I am one of them. Some of those issued latterly in the United States have had most delightful designs, but few will want to include the stamp issued to commemorate the centenary of the first Atlantic cable. Interesting as is the event being commemorated, surely a more suitable stamp could have been designed by those gifted artists who have been responsible foi so many fine American stamps.

One more point, would it not have been more fitting if the cable line had been pushed a bit further up? But let me add that the colour of the stamp is attractive enough, and after all, among such a multitude of new stamps, even America cannot back a winner every time.



UNITED EUROPE

Once more we have had two stamps of the same design issued by the countries that form the European Union. The Dutch designer A. van der Vossen was the artist concerned, and the stamps appeared on 13th September. Some of the earlier stamps issued for the same purpose by the same group are now quite scarce, but I don't suppose that the latest will ever be expensive, though the new design is attractive enough in its bold simplicity.



But what do you think that four pointed object at the top of the E represents? You would never guess, so I had better explain. It is Mr. Vossen's interpretation of the "Dove of Peace."

MOUNTING STAMPS

Not so very long ago I saw a very disappointed young collector leaving a stamp shop, where he had failed to sell his collection. It was all his own fault. The dealer had told him that the stamps in the collection were all right, and the price asked was reasonable, but many of the stamps were in poor condition, owing to the way they had been mounted. They were all mint, "QE" stamps, and there were some quite nice little sets, but the stamp mounts used were of inferior quality; and in mounting them, far too much moisture had been used, so that many of the stamps were stuck to the album pages, and attempts to remove them would have resulted in damaged copies.

Unless the utmost care is taken over the mounting of mint stamps, it is far better to go in for used stamps, when mounting is not so important. And don't forget—just a flick of moisture is all that is wanted.

A NICE COVER

I have a weakness for a nice cover if it has an attractive stamp, topped off by a well designed cancellation. Thus it will be understood that when I received just such an envelope recently, from Mr. C. H. Barata of Portugal, I was very grateful for the attention, and I am asking our Editor to be so kind as to illustrate the stamp and the postmark. The latter is really a beauty.

The stamp was issued to mark the Sixth Congress of Tropical Medicine and the stamp is one more piece of evidence that Portugal has no need to go overseas to get her stamps printed. I am tempted to form a special collection of modern Portuguese stamps.



THE TIP OF THE MONTH

I have previously referred to the change in watermark pending for British stamps, and have recommended a purchase of the lower values while they are still current. Now I am going to refer to the values from 2/6 to £1 used. Recently in a shop I saw very nice specimens and I realised how they had come down in price, since it was seen that the new printings by De La Rue did not differ in any important particular from the older ones by Waterlows.

These stamps are priced in the Commonwealth QE Catalogue used as follows 2/6—6d., 5/-—1/3, 10/-—3/- and £1—9/6. That is a guide to prices for really fine copies. You may even get them at a bit less. Inferior copies are much cheaper, but don't bite. As time goes on you will probably find that you have made a good purchase.

Happy Visitors at the Meccano Works



THE second lucky holder of a Dinky Toys Collectors' Licence to win the privilege of visiting the works at Binns Road and Speke, Liverpool, where his favourite Dinky Toys are made, was Peter Redfern, of Bromborough. Here he is seen, with his parents, having a good time with the Dinky Supertoys Car Carrier and Trailer. With them is Mrs. U. P. Hornby, Director of Meccano Limited, and her daughter, Michaela, who greeted Peter and his parents when they paid their visit.

If you have not yet got a Licence write to the Secretary, Dinky Toys Club, Binns Road, Liverpool 13, immediately for one. If you do this, in some future month you may be the fortunate holder of the Licence bearing the number selected by Stirling Moss, and you and your parents have the pleasure of a visit to Liverpool, with first-class railway fares and hotel and all other expenses paid by Meccano Limited.

Road and Track—*(Continued from page 11)*

Abbey and was astonished at the superb condition in which these cars are kept. There were at least a hundred Bullnoses there, impeccably turned out and including the very fine 1913 model owned by Mr. Frank Wootton, the well-known artist. This car is the oldest privately owned Bullnose still on the road.

Some of the cars had travelled from as far away as Scotland. Not one was younger than 32 in years, and many owners proudly claimed at least 250,000 miles. What impressed me most, after I had watched the various driving tests, was the scrupulous under-bonnet cleanliness of most of the Bullnoses. No enthusiast is sincere unless he keeps his engine just as clean as the body cellulose, and some of the engines could have been exhibited in a glass case. Another thing that impressed me was the multiplicity of greasing and oiling points —76 of them on the four-wheel brake models—and the ease of accessibility for the owner driver

There is another Bullnose Rally next July and I will give you a reminder about it in Road and Track.

Monte Carlo Rally

From the 18th to 21st January, 95 British cars and crews will compete in this, the world's most popular and publicised rally. Sometimes it is tough, sometimes it is easy and invariably it is thirsty work. Last year, British competitors were asked how they quenched their thirst en route. A large majority drank Lucozade, as do quite a few racing motorists, including Stirling Moss, and the next most popular beverage was coffee. Very few of the competitors drank alcohol, and it does prove the point that driving and alcohol do not mix. After all, the boys who do the Monte should know. Oh yes—and one competitor drank nothing else but water.

Among the Model-Builders—*(Continued from page 37)*

weather the moisture will evaporate from the salt and the disc will then return to its former position.

The movement is of course extremely delicate, and every care should be taken to make sure that the disc can move quite freely in its supports.

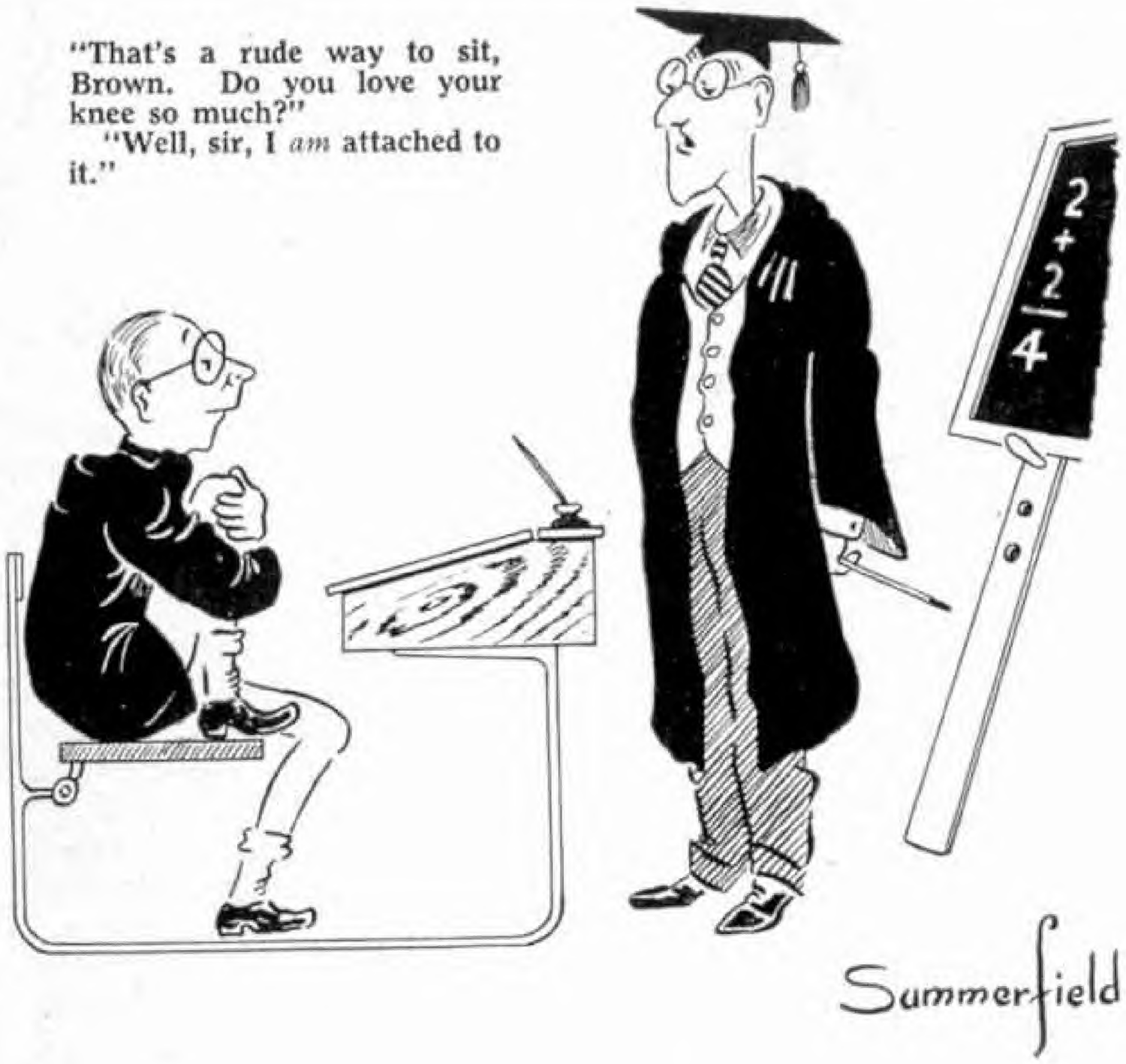
Simple Brake

Builders of simple model cranes who wish to fit their models with a brake to hold the load when the hoisting handle is released will find the simple arrangement shown in Fig. 2 (page 37) satisfactory for the purpose. This consists of a lever 1 pivoted at its lower end on a bolt lock-nutted to the lug of a 1" × ½" Angle Bracket which, in an actual crane, would be bolted to a suitable part of the cab framework. Pivotally mounted on a ⅜" Bolt 2 is a 2" Slotted Strip 3, the slotted hole of which passes over the end of the winding drum shaft, represented in our example by the Rod 4. This Rod carries at one end a 1½" Flanged Wheel 5, which forms a brake drum. A Bolt 6, locked by two nuts in the Slotted Strip, forms the brake shoe.

When the lever 1 is pulled back the nuts on Bolt 6 are forced against the inside of the rim of the Flanged Wheel and so act as a brake. A Tension Spring 7, arranged as shown, tends to keep the brake shoe free of the drum when the lever is released.

"That's a rude way to sit, Brown. Do you love your knee so much?"

"Well, sir, I *am* attached to it."



Summerfield

Fireside Fun

Criticised for addressing his employer as Mr. 'Arrison, a workman remarked: "Well, if a haitch and a hay, two harrs, a hi, a hess, a ho and a hen don't make 'Arrison, what does?"

* * * *

Young lad: "Gosh, you look big and husky."
P.T. expert: "I eat corn-flakes for breakfast."
Young lad: "And your shoulders are so square."
P.T. expert: "Sure. I eat the boxes too."

* * * *

"Am I getting better?" asked the patient.
"I don't know," answered the doctor, "Let me feel your purse."

* * * *

Son: "What's a gentleman, dad?"
Father: "A gentleman, my boy, is a man who wears a tie although he has a beard."

* * * *

An old lady was kind enough to give a penny each time she encountered the man who sold penny packets of lavender in the street, but she never accepted the packet itself. One day, after bestowing her usual penny, the man said: "Excuse me, lady, but these packets have gone up to twopence."

* * * *

Man in restaurant, to waiter: "What's our crime? We've been on bread and water for almost an hour."

* * * *

Cannibal to son: "Don't you know that it is rude to talk with someone in your mouth?"

* * * *

"How did you break your leg?"
"Threw a cigarette in a manhole and stepped on it."

Old lady: "Aren't you ashamed to beg?"
Tramp: "Yes, lady, but I never let my personal feelings interfere with business."

* * *

Husband (to guest): "When anything goes wrong at my house, I just get busy and fix it."
Wife: "Yes, he fixed the clock the other day—now the cuckoo backs out and asks 'What time is it?' "

* * * *

THIS MONTH'S BRAIN TEASERS

CAN YOU SOLVE THIS?

F U N E M ?
S V F M
F U N E X ?
S V F X
O K M N X

* * * *

THE BARGE IN THE LOCK

A barge is in a canal lock. The barge contains a cargo of iron ore. If the cargo is dumped overboard what will happen to the water level in the lock, and why?

* * * *

ANSWERS TO LAST MONTH'S PUZZLES

The Match Trick

The requirements of the problem can be met by arranging the matches in the manner shown in the sketch below.

* * *



Tangled Teachers

The solution of the "Tangled Teachers" problem is as follows:

Mr. English teaches Grammar and Science; Mr. French, English—Science; Mr. Grammar, French—Music; Mr. Science, English—Music; Mr. Music, French—Grammar.

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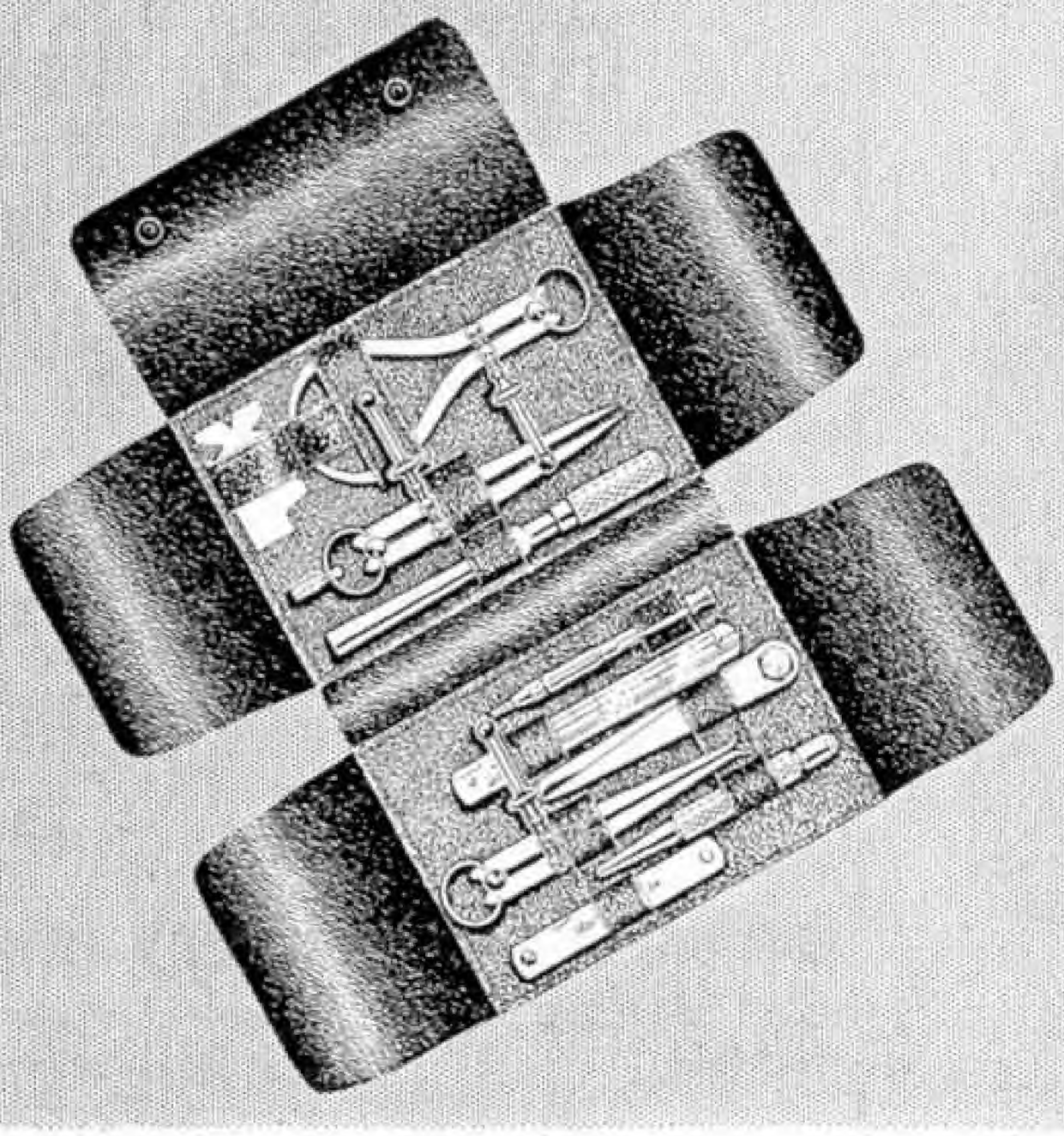
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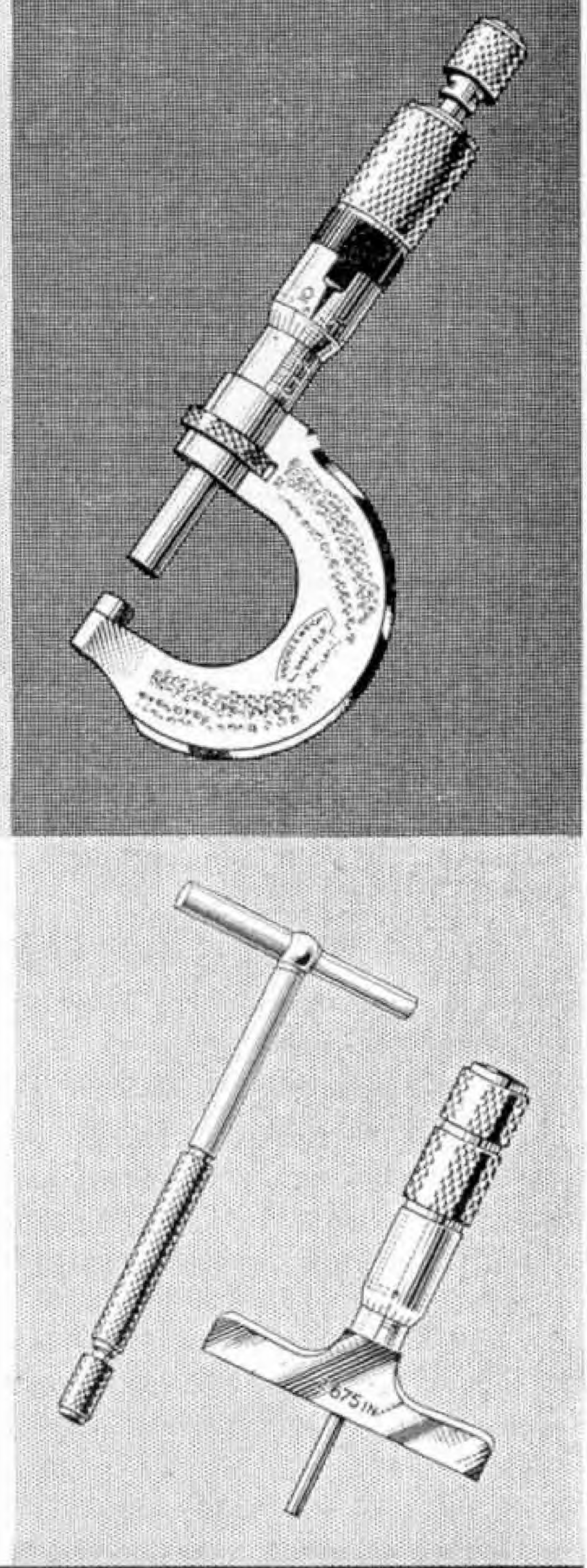
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At the close of the fifteenth century, Columbus was said to have seen the natives playing with a substance rolled up into a ball, which bounced. This substance, it was found, oozed from the bark of a certain tree, now called *Hevea Brasiliensis*. Later, in 1615, the Spanish conquistadores used the same 'gum' to coat their cloaks against the weather and were the first Europeans to put rubber to a practical purpose.

Nearly 300 years later, sheet rubber was used in making the first practicable pneumatic tyre. Invented by John Boyd Dunlop, it was the forerunner of the famous tyres that bear his name and still lead the world today.

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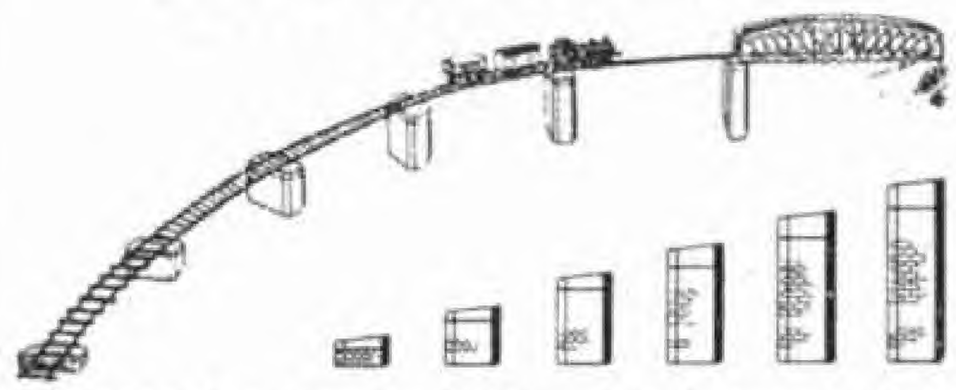
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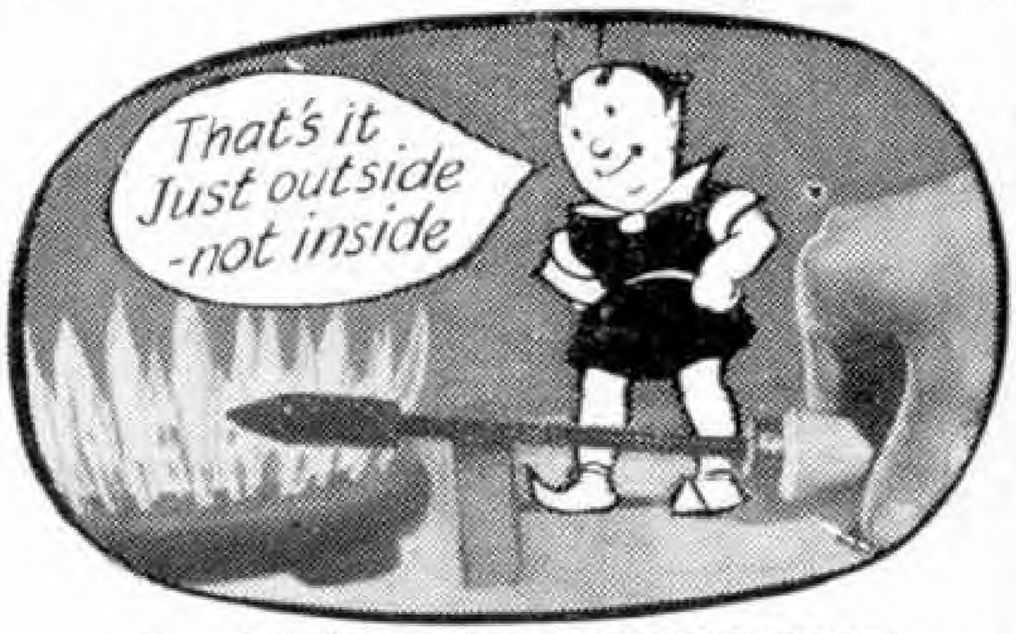
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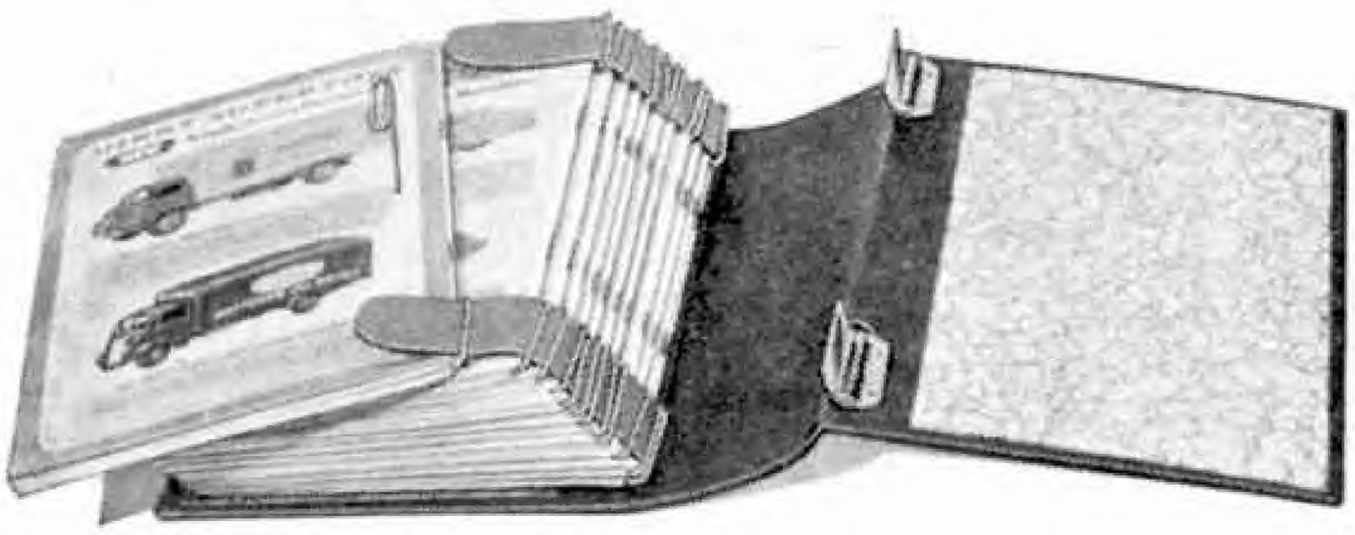
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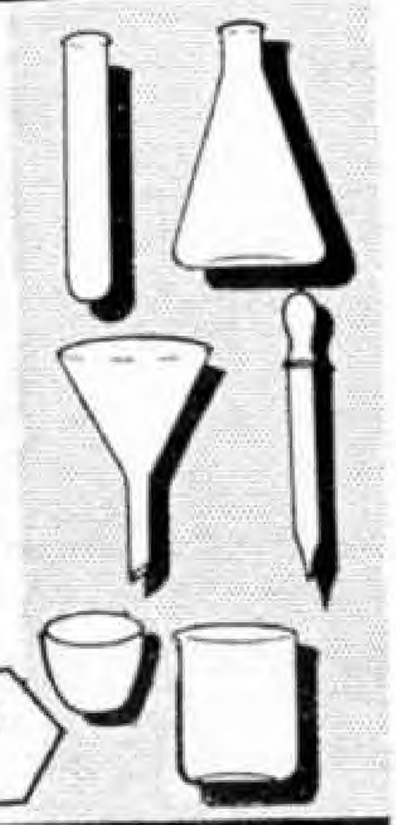
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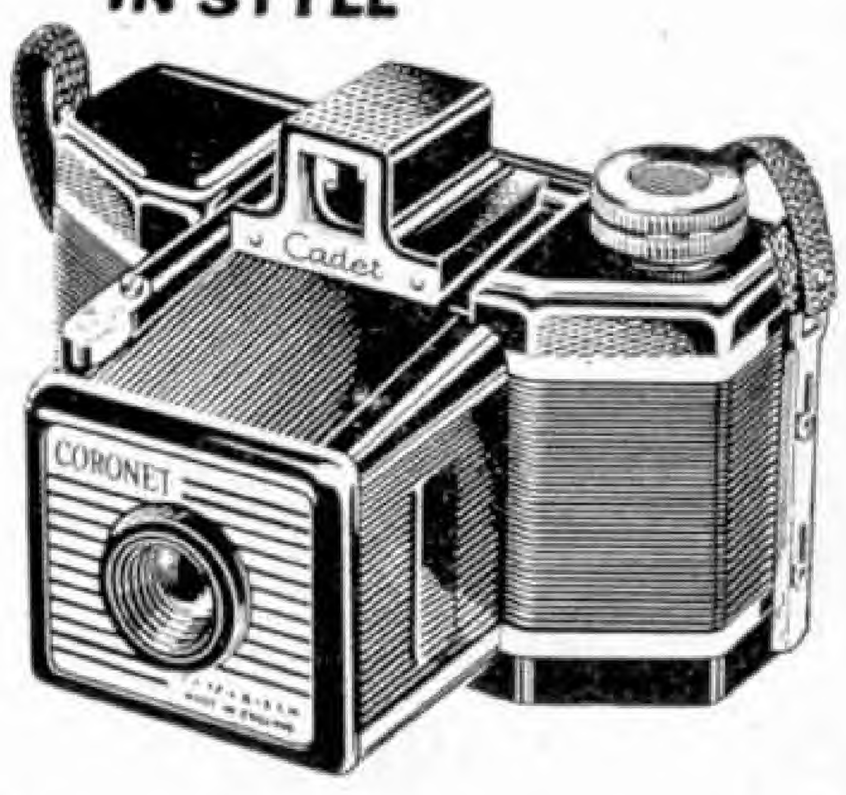
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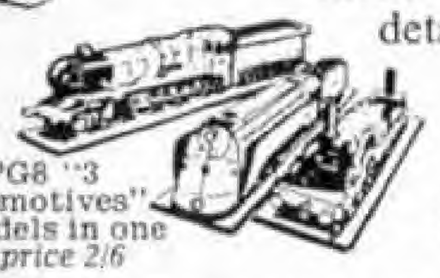
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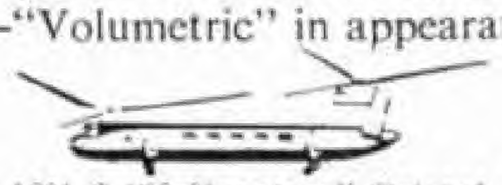
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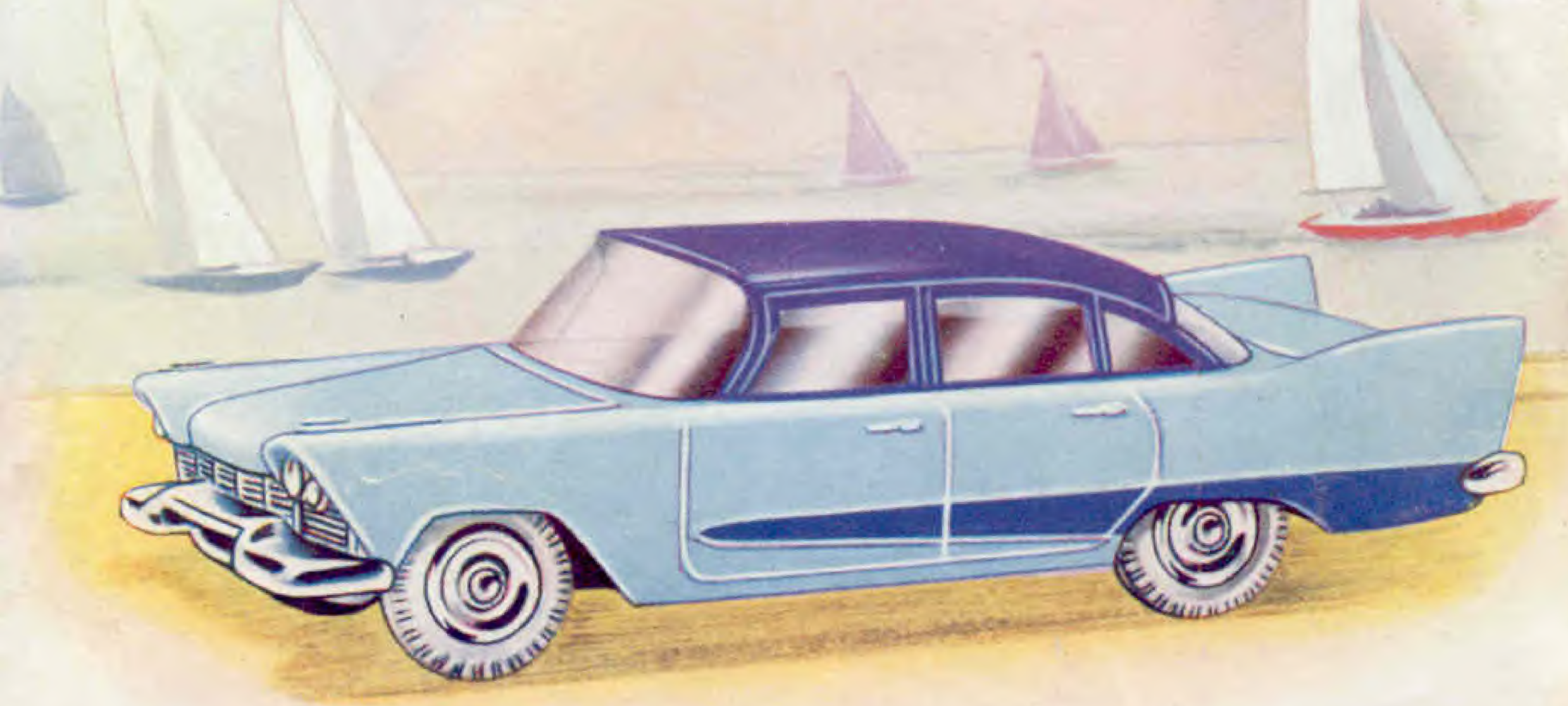


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Length: 3 11/16 in.

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MADE IN ENGLAND BY MECCANO LTD., BINNS ROAD, LIVERPOOL 13

MODEL OF THE MONTH.

HAND LOOM.

Illustrated in the January 1959 issue of the Meccano Magazine.

Framework.

Bolt two 12½" Angle Girders 1 and 2 to a 12½" Angle Girder 3, and a 7½" Angle Girder 4, supported with a Corner Gusset. A 7½" Angle Girder 5, a 9½" Angle Girder 6, and a 7½" Strip 7 are bolted to the Angle Girders 1 and 2. Build another similar side and connect them together with five 7½" Angle Girders and a 7½" Strip. Attach a 2" Flat Girder to the 9½" Strips 9 and also fix another 2" Flat Girder, extended by a 2" Flat Girder 10, to the Angle Girder 5.

Heald Frames.

Each Heald frame is built from two 11½" Rods, two 5" Rods and four Couplings, and each holds ten healds. Place these in the Flat Girders 8 and 10, and adjust the Flat Girders to allow free up and down movement of the frames. To the Strips 9 two 4½" and two 3½" Strips are attached by means of Angle Brackets. Four loose 1" Pulleys are placed on a Rod 11 in the top end holes of the Strips. Bolt a 2½" x 1" Double Angle Strip 12 to one of the 7½" Strips 7 and place in it a 3½" Rod with four 5½" Strips two of which are shown marked 13. Collars should be used to space them apart. To each heald frame, at a point near the centre of the top rod, tie a cord and connect it to one of the Strips 13. Note: The heald frame must be in the bottom position and the Strips 13 raised against the stop rod 14, which is mounted in Corner Gussets. Next, strong elastic bands are attached to each heald frame and the 11½" Rods 21 as shown in the illustrations.

The Reed.

On two 3½" Screwed Rods place a 2½" Strip and a Washer alternately until 40 spaces or "dents" are made. Then secure a 5½" Angle Girder to each end of the Screwed Rods with Nuts. The Reed is suspended from the Rod 15, which is journalled in 1" Corner Brackets attached to the Angle Girder 6.

The Set-up Motion.

A Wood Roller, covered with sand paper, is secured to Rod 16 with a 57-tooth Gear Wheel 17 fixed to its end. The Gear engages with a Worm on a 6½" Rod 18, the Rod being mounted in a 1½" Corner Bracket and a ½" Reversed Angle Bracket bolted to the frame Girders as shown. Two 7½" Strips 19, placed face to face but spaced apart with four Washers, are bolted to the 7½" Angle Girders 20 in the positions shown. The gap between the pairs of 7½" Strips provides a slide for the axle of a Wood Roller, which is fixed on a 6½" Rod the ends of which project between Strips Springs attached to Loaded Hooks hooked on to the Girder 20 and also attached at their lower ends to the 6½" Rod, serve to hold the two Wood Rollers in contact.

Tension Motion.

An 8" Rod 22 fitted with two Cranks 23 and a Crank extended by a 2½" Strip 24, is placed in the end hole of Strips 7. Cranks 23 support a 4" Rod which is held in them by Collars. A Spring 25 hooked to the 2½" Strip and the Angle Girder applies the necessary tension to the warp threads.

The Warp Beam.

Four 3½" x ½" Double Angle Strips are bolted between two Face Plates, and the latter are fixed on an 8" Rod, together with two 2" Pulley Wheels 26. Cords passed around the Pulleys and held taut by Springs, keep the warp threads tight.

How to prepare the Warp Beam.

A suitable material to use for the warp threads is 2 or 3 ply wool. To prepare the threads ready for the beam, place two 6" nails which we will name A and B, about 3 yards apart, with two 6" nails C and D, placed between them 3 inches apart and about 18 inches from the outer nail A. Now fasten the wool to nail A, pass over nail C, and under nail D, around outer nail B, coming back over nail D, and under nail C, then around nail A. Repeat this sequence until 40 threads have been dealt with. Cut the threads at nail A. Using the Loom Reed, place the first thread in the first dent, the second thread in the second dent and so on, until all the threads are put through the Reed. The threads are tied together in one large dog knot. This knot is placed in the centre of the beam, between two of the Double Angle Strips, and the beam axle placed through the centre of the threads. With the Loom Reed held in front of the beam, the threads will fan out to the width of the Face Plates, as the threads are tightly wound around the beam, after removing the nails C and D. The nails C and D are used only to keep the threads in the correct order, until they have been placed through the Reed. With all the warp wound on the beam, the threads are now cut off the nail B. The beam can now be placed in the loom, with the Reed removed.

Drawing the threads through the Healds.

Having placed the beam in position in the Loom, with the cords tensioned around the 2" Pulleys on the beam shaft, pull about 18" of the warp off the beam. Take the first thread and pass it through the 1st heald on the 1st frame. Then take the second thread and pass it through the 1st heald on the 2nd frame. Continue as follows:-

3rd Thread through 1st Heald on the 3rd frame.

4th " " " " " " 4th "

5th " " 2nd " " " 2nd "

6th Thread through 2nd Heald on the 1st frame.

7th " " " " " " 4th "

8th " " " " " " 3rd "

Repeat this sequence till all 40 threads are drawn through the healds. Now the 1st thread is put through the 1st dent in the reed, the 2nd in the 2nd dent and so on. Now brush all the threads up evenly and pass them around the Wood Roller wrapped with sandpaper, and fix them in the Wood Roller with a 3½" Rod in the groove.

To Weave.

First wind a few yards of wool on to a 3½" Rod to form the weft thread now choose one of the Design Schemes listed later in these instructions and depress the appropriate levers (13). Now pass the Rod carrying the weft thread between the warp threads. Release the levers, and draw the reed forward. Now push the reed back and depress the next set of levers as indicated in the Design Scheme. Pass the weft between the warp threads again and bring the reed forward to press the weft against the preceding one. Continue in this way, depressing the appropriate levers and when an inch of cloth has been woven, the Hand Wheel 18 can be turned to take up that amount on the Roller .

Design Schemes suitable for the Four Heald Frame Loom.

No. 1 Design.

(1) Depress the 1st and 4th Lever and take the weft thread across.
(2) " " 1st " 2nd " " " " " " "
(3) " " 2nd " 3rd " " " " " " "
(4) " " 3rd " 4th " " " " " " "

No. 2 Design.

(1) Depress the 1st and 3rd Lever.
(2) " " 1st " 2nd "
(3) " " 2nd " 4th "
(4) " " 2nd " 3rd "
(5) " " 1st " 3rd "
(6) " " 3rd " 4th "
(7) " " 2nd " 4th "
(8) " " 1st " 4th "

No. 3 Design.

(1) Depress the 1st and 3rd Lever.
(2) " " 1st " 2nd "
(3) " " 2nd " 3rd "
(4) " " 3rd " 4th "
(5) " " 2nd " 4th "
(6) " " 1st " 2nd "
(7) " " 1st " 4th "
(8) " " 3rd " 4th "

No. 4 Design.

(1) Depress the 1st and 4th Lever.
(2) " " 1st " 2nd "
(3) " " 2nd " 3rd "
(4) " " 3rd " 4th "
(5) " " 1st " 2nd "
(6) " " 1st " 4th "
(7) " " 3rd " 4th "
(8) " " 2nd " 3rd "

No. 5 Design.

(1) Depress the 2nd and 3rd Lever.
(2) " " 1st " 3rd "
(3) " " 1st " 4th "
(4) " " 2nd " 4th "

It must be under-stood that the numbers 1 to 4, or 1 to 8, in any one design are to be repeated until the required amount of cloth has been woven.

Parts required to build the Four Heald Frame Loom.

2	of No.	1a	3	of No.	16.	3	of No. 62
7	" "	1b	2	" "	20a	16	" " 63
6	" "	2	4	" "	22a	2	" " 80c
2	" "	2a	1	" "	24	40	" " 101
2	" "	3	1	" "	27a	6	" " 103g
40	" "	5	1	" "	32	2	" " 106
6	" "	8	4	" "	35	6	" " 108
2	" "	8a	88	" "	37a	2	" " 109
9	" "	8b	94	" "	37b	34	" " 111a
2	" "	9	106	" "	38	1	" " 115
4	" "	12	5	" "	43	1	" " 125
11	" "	13	1	" "	46	1	" " 133
4	" "	13a	4	" "	48b	2	" " 133a
2	" "	14	6	" "	57b	88	Elastic Bands
10	" "	15	31	" "	59		

NOTE! Those model builders with not so many parts can use only two heald frames, working each one up and down alternately.